Foreign capital and Earnings Management: International Evidence from Equity Market Opening

ABSTRACT

The opening of equity markets to foreign investors provides financing opportunities and disrupts the stock ownership structure for firms in these markets. In this paper, we study the effects of equity market opening on firms' earnings management. Using international firm-level data, we find a significantly positive effect of equity market openness on firms' income-increasing earnings management. We show that there are substantial heterogeneous effects across industries and firms. The positive effect is more pronounced in industries that are more dependent on external financing and firms that are financially constrained, suggesting that firms' intrinsic need for equity finance contributes to income-increasing earnings management behaviors. In addition, the effect is weaker in the presence of BigN auditors, indicating the monitoring effect of relatively more reputable auditors. Overall, our results suggest that incentives to attract financing when a country opens its equity market to foreign investors have a detrimental effect on domestic firms' reporting bias.

***Key words**:* equity market openness, earnings management, equity finance dependence, financial constraints

1. Introduction

In the past three decades, a growing number of emerging countries have gradually lifted controls on their stock markets, allowing foreign investors to directly invest - at least partially - in the equity shares of local firms. The opening of markets to foreign capital is an important phenomenon in an increasingly globalized world and many studies have examined its implication for both the country's economy and individual firms within the country (e.g. Bekaert et al., 2005; Bonfiglioli, 2008; Gupta and Yuan, 2009; Chan and Kwok, 2017). Not surprisingly, the availability of foreign capital to domestic equity markets brings significant financing opportunities to domestic firms since for many open economies, foreign investors contribute to a significant proportion of investment in their capital markets (Kim and Wei, 2002; Edison and Warnock, 2003). Financing opportunities are vitally important for managers to promote firm growth, especially for firms that are financially constrained (Ayyagari et al., 2008). From an information perspective, equity market opening creates disruption to the existing equilibrium in that there is now a new investor clientele (i.e., foreign investors) who demand information to reduce the adverse selection before investing in the firms within the country (Covrig et al., 2007; DeFond et al., 2011). In face of the potential to attract foreign capital and information demand from foreign investors, a firm in a country that opens its equity markets faces an important decision as to how to report its earnings, especially when it can exercise discretion to manage the reported numbers (Fischer and Verrecchia, 2000; Healy and Palepu, 2001; Leuz et al., 2003).

On one hand, the desire to appear as a more attractive investment might lead firms to engage in upward earnings management, since firms that look more profitable are generally perceived as having more growth opportunities and better investments (Haugen and Baker, 1996). In other words, equity market openness could give rise to incentives of upward earnings

management for the firm to exploit these growth or investment opportunities, especially when the existing shareholder group wishes to impress the prospective foreign shareholder group with the firm's past performance (Dye, 1988). On the other hand, one might expect equity market opening to result in less upward earnings management, since inflating current earnings could lead to significant pressure to meet elevated market expectations of future earnings and prior studies have documented significant problems, e.g., pressure to commit fraud and significant stock price declines, that could result from failure to meet earnings expectations (Graham et al., 2005). This problem is exacerbated by future reversals of upward managed earnings putting downward pressure on earnings in the future (DeFond and Park, 2001). Consequently, whether firms engage in upward earnings management after equity market opening remains an open, empirical question; there is also likely to be significant heterogeneity in this relation depending on country-, industry- and firm-level conditions.

Our paper provides evidence on how and to what extent equity market openness influences firms' earnings management. We exploit shocks to the availability of external equity finance and examine the impact of equity market openness on firms' earnings management behavior of 64 countries during the period from 1989 to 2014.[1] The use of shocks helps to alleviate concerns of endogeneity. For example, endogeneity might arise because external financing and earnings management are corporate decisions that could be arise because of some underlying firm characteristic such as growth/investment opportunity and corporate governance mechanisms.[2] There could also be reverse causality because actual or expected earnings

[1] Tracing back to Henry, 2000, several similar but different concepts related to equity market openness appeared in the literature, for example, financial openness, financial integration, equity (stock) market liberalization. Here we focus on the concept of formal regulatory openness in the equity market that has made domestic equity shares become officially available to foreign investors.

[2] There are several firm characteristics that may be difficult to measure or fully control for using publicly available data. For example, several studies find well-designed corporate governance arrangements can constrain earnings

management could affect the availability of external financing. There is significant evidence that potential and current investors, as well other stakeholders, expect/anticipate earnings management (e.g., Erickson and Wang, 1999; Burgstahler and Eames, 2003; Graham et al., 2005; Shivakumar, 2000).

We find that equity market openness is significantly positively related to firms' upward earnings management. This result is not driven by cross-country differences in gross domestic product (GDP) growth and is independent of concurrent trade liberalizations. Furthermore, the earnings management finding is robust to a variety of alternative specifications, and is concentrated in the year of equity market opening. We further show that equity market openness increases discretionary accruals disproportionately more in sectors dependent on external finance and in R&D intensive sectors, indicating that firm's external financing dependence play an important role in managers' decision making.

To the best of our knowledge, little research has been done in examining the relationship between the arrival of external financing opportunities and firms' financial reporting using international data, especially under the setting of equity market openness. Only a few papers examine such a relationship in a similar setting by mainly looking at country level aggregate measures, for example, Bae et al. (2006) argue that stock market liberalization decreases firms' earnings smoothing and loss avoidance; Gaio (2010) documents that financial globalization makes firm characteristics more compelling and institutional characteristics less vital in explaining earnings quality worldwide. These studies are, however, limited to the fact that most of them neglect the time-varying and incremental opening nature of capital markets and they do not investigate this very specific dimension of accrual-based earnings management. In particular,

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management (e.g., Beasley, 1996; Dechow et al., 1996; Klein, 2002; Warfield et al., 1995) and there is a large literature that examines how such mechanisms affect external financing (e.g., Doidge et al., 2007; Francis et al., 2005b; Williamson, 1988).

these studies show long-term improvement in the information environment following equity market openings, while we investigate the short-term deterioration. In addition, they do not exploit sectoral and/or firm-level variations of the impact of equity market openness.

We use international firm level data and exploit the sample-wide variation of firms' earnings management behavior in the process of equity market opening by conducting a generalized difference-in-difference test. Specifically, we examine whether firms engage in income-increasing earnings management during the period of their countries opening their equity markets to foreign entities compared to other periods. We calculate difference between the firms' discretionary accruals during the year in which a country lifts controls on its equity market and those in other years, and compare it to the same difference in countries not implementing such a regulatory change during that year. As discussed in Larrain (2014), the use of a sample including countries opening at different moments of time allows us to conduct a generalized difference-in-difference test in a setting with multiple-treatment-groups and multiple-sample-periods. According to this procedure of utilizing staggered reforms, the "control" group at a certain year includes both the countries that have already opened and those that have yet not opened their equity markets.

Sample-wide, we find income-increasing earnings management in the year of relaxation in country-level equity market controls, and our estimates of earnings management suggest that on average discretionary accruals contribute to more than 1%-point increase in return on assets (ROA) during these periods for sample firms. Our baseline test includes several controls that should enhance our confidence to separate earnings management from the real economic output. In addition, we perform several robustness tests that help alleviate the concern of bias in measurements and estimation procedures. This finding corresponds to prior literature, that

financing opportunities and information asymmetry between investors and managers tend to induce firms to engage in earnings management (Cohen and Zarowin, 2010; Teoh et al., 1998).

In further analyses, we examine cross-sectional variations in the average effect of equity market openness on firms' earnings management behavior. First, we explore within-country cross-sectoral variation in industry characteristics. The basic idea of this analysis is that, as Rajan and Zingales (1998) point out, the importance of the availability of outside capital increases with an industry's dependence on external finance. If the equity market is a key factor allowing financing constraints to be relaxed, then a sudden increase in the capital availability in the market should have a disproportionately impact on the sectors that have originally been constrained by the limited capital in the market due to their dependence on external finance. Therefore, external financing need could serve as the main incentives for earnings management in our setting and we consider firms' external finance dependence from various angles. Consistent with the stronger dependence on external finance resulting in greater pressure on managers in exploiting financing opportunities, we find that earnings management is more pronounced in sectors which are highly dependent on external finance. The strong positive effect among firms that are more financially constrained further confirms our above conjecture.

Second, we undertake a cross-sectional test to see whether the effect differs in firms with different stakeholders. Previous literature document that earnings management is less severe among firms audited by BigN audit firms (see Dechow et al. (2010) for an overview). We find evidence that firms with BigN auditor[3] exhibit less income-increasing earnings management, in our case when their domestic market opens up to foreign investors. This result suggests the monitoring effect of higher quality auditors and the importance of firm-level supervision in constraining financial misreporting. Next we introduce the interaction term with analyst coverage

[3] Here we refer to firms that have primary auditors coded from 01 to 08 in Capital IQ Global.

and institutional ownership (especially domestic institutional investor ownership) separately into equation to see what kind of role these stakeholders are playing in our setting. We show that the results on the interaction terms are statistically significant and positive, suggesting that these two parties are putting pressure on firm managers to enhance the visibility of the firm to prospective investors, rather than their monitoring role dominant during the opening periods.

In addition, we explore whether institutional quality matters for firms' financial reporting behavior. We show that institutions with stronger public enforcement tend to discourage firms from engaging earnings management, while economies with higher level of corruption tend to encourage firms' earnings management behaviors. Although we do not find significant results using financial reporting specific legal enforcement, our overall country-level cross-sectional tests indicate the important role of legal environment in disciplining firms' financial reporting behaviors.

Our paper contributes to several aspects of the literature. This paper is related to the literature on external financing and disclosure. There exists an early literature that treats disclosure is exogenous and examines the effect on external financing (La Porta et al., 1997, 1999). A more recent literature examines how changes in disclosure regulation, such as IFRS adoption, affect external financing (DeFond et al., 2011; Hong et al., 2014). Previous studies have also examined how external financing affects firm's disclosure. In particular, some papers have examined the earnings management behavior of firms that have actually engaged in IPOs or SEOs (e.g., Cohen and Zarowin, 2010; Ertimur et al., 2017; Rangan, 1998; Shivakumar, 2000; Teoh et al., 1998). Our paper complements and contrasts with these papers as follows. First, because prior papers focus on successful external financing, it is difficult to conclude whether firms typically engage in earnings management in response to external financing opportunities. It

is possible that firms, on average, do not engage in upward earnings management but the firms with successful IPOs or SEOs are those that have successfully misled investors with upward earnings management[4]. For example, in contrast to prior studies, Ertimur et al. (2017) find no evidence of income-increasing earnings management in anticipation of the IPO. Second, we are able to rely on shocks to the equity markets of countries to better identify how the arrival of financing opportunities affect managers' reporting behavior in respond to changes in the financing environment. To further identify the effect of financing opportunities, we follow the literature on equity market opening and carry out difference-in-difference tests based on industry-level equity market dependence (Manova, 2008; Gupta and Yuan, 2009; Moshirian et al., 2015). Based on these tests, we are able to conclude that firms in industries that depend more on equity financing engage in upward earnings management when countries open up their equity markets.

The remainder of the paper is organized as follows. Section 2 reviews related literature and presents our hypotheses development. Section 3 describes the data and the research design. Section 4 presents the main empirical result and robustness checks. Section 5 presents the cross-sectional estimation results. Section 6 concludes.

2. Background and Hypotheses Development

2.1 Background

The past three decades have witnessed a growing trend of equity market opening in many emerging economies. Opening an equity market is a decision made by a country's government with other countries to free the movement of capital in that country's equity market (Henry,

[4] In other words, these papers do not directly examine the effect of financing opportunities on earnings management. There is also contention as to whether the earnings management around actual offerings is due to issuers' intention to mislead investors (Rangan, 1998; Teoh et al., 1998) or issuers' rational response to anticipated market behavior at offering announcements (Shivakumar, 2000).

2000). Equity market openness brings significant financing opportunities to domestic firms. According to Rajan and Zingales (2003), the cross-border capital movement is high both at the beginning and the end of the twentieth century for most countries. This phenomenon is continuously growing over the recent years until 2008. The global crisis has sparked interest in the relationship between international capital flows and domestic financial crises in both academia and politics (Mendoza and Quadrini, 2010).

Despite a long history, there remains a large body of literature in the international finance literature debating about the costs and benefits of financial globalization (regulatory openness)[5]. It is commonly agreed that financial globalization has dual effects: on the one hand, it tends to lessen the financing constraints, contributing to higher investment and growth; on the other hand, it encourages risk-taking, often resulting in severe consequences such as financial fragility or even financial crises (Ranciere et al., 2006). Although strong theoretical presumption asserts financial globalization should be welfare improving, many researchers have noticed that the occurrence of domestic financial crises was often accompanied by financial globalization (see Bonfiglioli (2008) and Reinhart and Rogoff (2011)). In line with this, Broner and Ventura (2016)'s model shows that the level of development and the quality of institutions determine how financial globalization affects a variety of domestic outcomes.

The empirical findings and theoretical conclusions do not seem to be very consistent over the debate on the desirability of capital controls. In recent empirical works, Bekaert et al. (2005) argue that equity market liberalizations lead to significant increase in real economic growth. Mitton (2006) shows that firms with stocks that are open to foreign investors experience better operating performance compared to other domestic firms. Using a broader indicator, Larrain and Stumpner (2017) find that capital account openness improves resource allocation by enabling

[5] See Henry (2007) and Kose et al. (2009) for a survey of the literature.

financially constrained firms to raise more capital and produce more efficiently. Theoretical predictions, however, argue the other way around. For example, Rajan and Zingales (2003) examine the politics of financial development in the twentieth century model. They develop a theory that shows that when an economy allows both cross-border trade and capital flows, opposition to financial development will be most muted and development will flourish. Using an open-economy model, Mendoza and Quadrini (2010) also show that financial integration played an important role in the recent financial crises by leading to a sharp rise in net credit and asset price spillovers. Therefore, a thorough exploration of benefits and/or costs brought by financial globalization is rather intriguing and economically important.

There is, however, one obstacle faced by almost all researchers who study financial liberalization. For most of the countries, although Bekaert et al. (2011) provide evidence that equity market openness is the main determinant of variations in equity market segmentations, it is hard to pinpoint the exact opening dates because equity market openness per se is typically a gradual process, not a one-time event. For example, the Philippine government signed Foreign Investment Act into law in June, 1991, which removed all restrictions on foreign investment over a period of three years (Bekaert et al., 2005); for the Korean stock market, starting from July 1992, foreigners were subject to a partial opening of its stock market and only allowed to own up to 10% of domestically listed firms until May 1998, a subsequent liberalization happened with 100% change in foreign ownership ceilings (Kim and Wei, 2002). Besides, equity market opening is often concurrent with other economic reforms which make it harder to disentangle the effects explicitly brought by liberalizations.

In our study, we build upon and extend Bekaert et al. (2005)'s official liberalization indicators by using two kinds of equity market openness indicator simultaneously – the binary

and continuous measurements - to study how firms respond to the financing opportunities brought by financial liberalization. Our baseline accruals specification is expanded by controls for other macroeconomic reforms such as trade openness and International Financial Reporting Standards (IFRS) adoption. As an exploration of benefits and/or costs of financial liberalization, we investigate whether firms exhibit income-increasing earnings management behaviors during the equity market opening periods. Furthermore, we discuss cross-sectional predictions arising from factors associated with earnings management around opening episodes.

2.2 Hypotheses Development

According to the previous literature, firms' capital raising activities are generally associated with earnings management[6].

On one hand, firms that are more profitable are generally perceived as having more growth opportunities and better investments (Haugen and Baker, 1996). Hence, firms, in face of the potential to attract foreign capital, have incentives to managing its earnings upwards to attract more capital and/or raise new capital at lower cost (i.e., sell new shares at higher prices). For example, in an investigation of why corporate managers misstate financial statements, Efendi et al. (2007) find that US firms that raise new equity or debt finance are more likely to have misstatements.

Even if no new capital were involved, there would still be an incentive to manage earnings upwards to the extent it enables existing shareholders to sell their shares to foreign investors at higher prices if there is alignment of interests between existing shareholders and the managers (who themselves might be existing shareholders) of the firm (Dye, 1988).[7] Fischer and

[6] See Dechow et al. (2010) for an overview.
[7] Dye (1998, p. 197) notes that "The demand for earnings management derives from one shareholder generation's attempt to impress the next generation with the firm's past performance."

Verrecchia (2000) demonstrate theoretically that the ex-ante benefit from biasing the report is positive if there is sufficient uncertainty about the manager's reporting objective. In the case of equity market opening, we argue that many foreign investors who are interested in investing in a country's firms after equity market opening, face significant uncertainty related to manager's reporting objective(s) and more generally, reporting behavior. Hence, the desire to appear as a more attractive investment might lead firms to engage in upward earnings management.

On the other hand, inflating current earnings could lead to significant pressure to meet elevated market expectations of future earnings and prior studies have documented significant problems, e.g., pressure to commit fraud and significant stock price declines that could result from failure to meet earnings expectations (Graham et al., 2005). This problem is exacerbated by future reversals of upward managed earnings putting downward pressure on earnings in the future (DeFond and Park, 2001). Prior literature have documented that attempts to hide bad news increases the likelihood of stock price crashes due to the revelation of previously hidden bad news (Hutton et al., 2009; Kim and Zhang, 2016). Foreign investors, especially foreign institutional investors, have the potential to constrain managers from manipulating firm performance, as foreign investors require are more likely to invest in firms with fewer information problems (see Khanna and Palepu, 2000; Leuz et al., 2009).[8] Equity market opening might also lead to better corporate governance because foreign investors might be more sophisticated than domestic investors, especially in the developing countries that are opening their equity markets, and pay more attention to corporate governance. Aggarwal et al. (2011) find that firm-level governance is positively associated with international institutional investment. They also document that firms with higher international institutional ownership are more likely

[8] There is some evidence, including in the international setting, that being more aggressive in reporting earnings is associated with a higher cost of capital (Lara et al., 2011; Li, 2015).

to terminate poorly performing Chief Executive Officers (CEOs). Hence, one might expect equity market opening to result in less upward earnings management.

In sum, the incentives to "dress up" to sell shares to foreign investors suggest that equity market opening will lead to relatively more upward earnings management, whereas the consequences of better corporate governance with more foreign ownership will lead to relatively less upward earnings management. Whether firms engage in upward earnings management after equity market opening is ultimately an empirical question. There is also likely to be significant heterogeneity in this relation depending on country-, industry- and firm-level conditions.

Despite the tension in the hypothesis on how equity market opening affects earnings management, for ease of exposition (especially given our subsequent additional analyses), we state our hypothesis in the alternative form. Specifically, our first hypothesis is:

H1: When a country lift capital controls on its equity market, firms engage in upward earning management due to incentives to attract external equity financing.

Previous studies document the differential impact of macroeconomic conditions on sectoral growth by focusing on the difference in external finance dependence. For example, Rajan and Zingales (1998) show that external finance dependent sectors grow faster in a well-developed financial system due to the relaxation of credit constraints; Manova (2008) finds that equity market liberalizations have more positive effect on exports in industries that are financially fragile and demand more outside finance. Similarly, if equity market is the key factor allowing credit constraints to be relaxed, then a sudden increase in the capital availability in the market should have a disproportionately slack impact on the sectors that have originally suffered due to their dependence on equity finance. Therefore, for firms from sectors that are more dependent on equity financing, the capital market consequences of income-increasing earnings

management could enhance the benefits the firm receives in the form of capital accumulation from outside investors. Accordingly, we predict firms that are more dependent on external equity financing during the opening periods face stronger incentives to engage in income-increasing earnings management.

H2: The positive effect of equity market openness on upward earnings management is greater for industries that are more dependent on external equity financing.

Auditors are hypothesized to be an element of earnings quality due to their role in alleviating intended or unintended financial misreporting. According to DeAngelo (1981), the ability of auditors is a function of the auditor's capability to detect a substantial misstatement and appropriately deal with it. With few exceptions, prior literature document that firms with BigN auditors have significantly lower discretionary accruals than firms with non-BigN auditors (see Dechow et al. (2010) for an overview), suggesting information-based monitoring effect BigN auditors on earnings quality. Conversely, the role of analysts and institutional ownership in constraining firms from financial misreporting is mixed in the literature. Specifically in our setting, these firm-level stakeholders might put pressure on firm managers to enhance the visibility of the firm to the prospective investors, especially foreign investors, so that they can benefit from a higher future stock price. Collectively, we predict that income-increasing earnings management will be mitigated for firms with BigN auditors but exacerbated for firms with higher analyst following and institutional ownership during equity market opening periods.

H3: The positive effect of equity market openness on upward earnings management is weaker in firms audited by BigN audit firms, but stronger with high analyst coverage and institutional ownership.

Previous literature document that firms' legal environment matters for their financial reporting behaviors, e.g. Leuz et al. (2003), Gaio (2010), Francis et al. (2005b). On one hand, economies with stronger legal environment would constrain firms from misdoing by enforcing tough penalties and enforcement. On the other hand, institutions with higher level of corruption would induce more incentives for firms to conduct misreporting when they are faced with external financing opportunities. Hence, we expect firms from economies with strong public enforcement would do less financial misreporting, while firms from institutions that are with higher level of corruptions in the society would be encouraged to do more earnings management.

H4: The positive effect of equity market openness on upward earnings management is smaller in countries with strong legal enforcement, but larger in economies with higher level of corruption.

3. Data and Research Design

3.1 Sample selection

We collect firm-level financial data from Capital IQ Global. The sample represents all firms covered by Capital IQ Global with necessary data for our empirical analyses. Like the previous literature Yu (2008), He et al. (2017) and Lo et al. (2017), we exclude firms from financial sectors (SIC 2-digit: 60-69) and restrict firms to have necessary data to compute the accruals, operating cash flows and firm-level control variables. Firms' exchange markets are used as the country indicator in the empirical analyses[9]; therefore we exclude firm-year observations with missing exchange codes. We obtain country-level variables that represent formal institutions and financial development from World Bank Development Indicators and Penn World Table. We calculate sectoral indexes using United States data from Capital IQ North

[9] Some of the exchange codes correspond to multiple country codes, in that case we use firms' headquarter country code instead.

America. Our final sample consists of 200,460 firm-year observations for 26,187 non-financial firms from 64 countries from 1989 to 2014.

3.1.1 Equity market openness

The indicator variable of equity market openness is perhaps the most important variable in our paper. We use *Opening*, a *de jure* binary indicator that equals to 1 if a firm is from a country in the year of official equity market opening, and zero otherwise, as the proxy for equity market openness. The opening year is the official liberalization year from Bekaert et al. (2005), supplemented by the year of becoming an European Union (EU) member from Bekaert et al. (2013) and the year of stock market liberalization in China from Chan and Kwok (2017). The Bekaert et al. (2005) liberalization measure is based on detailed chronology of important financial, economic and political events in many emerging countries and has been widely used in existing literature, e.g. Manova (2008), Bae et al. (2008), Bae and Goyal (2010). The reason why we use the EU membership as a large jump in equity market openness is that the liberalization year for these European countries is not included in Bekaert et al. (2005), but Bekaert et al. (2013) show that membership in the EU has economically significantly contributed to convergence of discount rate and expected earnings growth across EU countries. Since the EU has been set out to free the movement of capital together with other resources within the union countries and financial integration is the long-term goal of regulatory openness, this evidence gives us more confidence in using EU membership as an opening indicator in the analyses.

3.1.2 Sectoral Indexes

We use three measures of external finance dependence that are calculated at the industry level. In particular, they are calculated using US data from Capital IQ North America: the external equity finance dependence and the investment intensity following Rajan and Zingales

(1998), the R&D intensity following Li (2011). The dependence on external finance, is defined as the ratio of capital expenditures not financed by operating cash flows to total capital expenditures; the investment intensity, an alternative measure of external finance dependence, is the ratio of capital expenditures to net property plant and equipment; the R&D intensity, which measures the R&D activities, is the ratio of R&D spending to total assets. All these measures are calculated as the industry median of United States publicly listed firms.

Rajan and Zingales (1998) point out that data on the actual use of external financing is typically not available; we have to find some other ways to identify an industry's dependence on external financing. The assumption is that there is a technological reason why the dependence on external finance varies across industries, and these differences persist across countries so that we can use sectoral external finance dependence indexes identified in the United States as representatives across other countries. Since Brown et al. (2009)'s finding suggest that external equity is one of the most important sources for firms to finance R&D, we also include R&D intensity as an alternative proxy for external equity finance dependence.

As for the benefit of using US sectoral indexes, as stated in Moshirian et al. (2015), the use of the United States data helps to alleviate the reverse causality concern that a country's financial liberalization is driven by its industrial growth or innovation activities and creates enough country-industry variation that allows us to examine the differential effect among different industries and institutions. Therefore, this methodology has been widely employed in cross-country studies, e.g., Larrain (2014), Manova (2012).

3.1.3 Descriptive Statistics

Panel A of table 1 shows the countries where we are able to identify equity market opening status. In total, the sample covers 64 different jurisdictions all over the world. Among countries

opening during our sample period, China, which opened near the end of our sample, is the largest with about 10% of the firm-years in our sample, followed by India, which opened in the beginning of our sample period, with about 8% of the firm-years the sample. We acknowledge that some of the opening events identified from Bekaert et al. (2005) are not covered by the observations in Capital IQ Global[10] due to data availability. We also supplement our sample by including economies that have already opened and those that have never opened equity market during the sample period to provide more nonevent observations to model parameters. Panel B of table 1 shows distribution of the sample by year. There is a clear time trend in the number of firm-year observations as stock markets and coverage have expanded during our sample period. The main effects of this are expected to be absorbed by time fixed effects in our model. In robustness tests we also include firm fixed effects to compare the same firms during and outside the opening year.

Panel A of table 2 reports the means and medians of the earnings management measures, equity market openness index, as well as firm- and country-level characteristics for observations in our sample. The mean and median of working capital accruals are 0.014 and 0.005, on average, which is comparable to those reported in the previous literature (e.g., He et al., 2017; Godsell et al., 2017). The mean of equity market openness index *Opening* is 0.012, suggesting that the occurrence of equity market opening during the sample period is relatively rare and only comes from the liberalizing countries (the mean value is 0.035). As for the firm-level variables, the mean and median of firm size is 4.742 and 4.678 respectively; the mean value of sales growth is 14.5%; the average leverage ratio (book leverage) is 24.8%. For the opening sample, except for the significant difference in accruals and openness degree, many other variables are on average

[10] Which is why we support our findings by using a continuous measure of equity market restrictions as well (based on Fernández et al. (2016)). More details about this measure please refer to Footnote 12.

reasonably comparable to those in other samples, with some exceptions for the country-level characteristics like financial development and trade openness[11]. We control for all these variables in our empirical tests.

Panel B of table 2 shows the univariate analysis of accruals during the opening year and other years. The t-test results show that total accruals and working capital accruals are significantly higher for firms during the equity market opening year than other periods. This test provides preliminary evidence that firms exhibit income-increasing earning management during equity market opening periods.

3.2 Research Design

We employ the cross-sectional accruals model introduced in Francis et al. (2005a), which combines the elements of Jones (1991) and Dechow and Dichev (2002) accruals models, to obtain the discretionary accruals. To control for firm characteristics that may also affect firms' accruals choices, we include proxies for firm size, leverage, growth, operating volatility, and net operating assets. We also include time-varying country-level control variables in the regression following Larrain and Stumpner (2017) and Chan et al. (2015). Similar to Godsell et al. (2017), we do not proceed in two stages - with a first stage identifying discretionary accruals and a second stage explaining variation in discretionary accruals - since Chen et al. (2017) point out that when there are correlations between explanatory variables, usage of two-step regression procedures could lead to biased coefficient estimates and standard errors, resulting in Type I and Type II errors. They suggest single-step procedures as the most basic solution to this problem. Specifically, we initially estimate the following equation:

[11] Which is also reasonable since most open equity markets are highly financially developed and have open trade markets as well (Manova, 2008).

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\begin{aligned}
ACC_{i,j,c,t} = \alpha_0 &+ \beta_1 1/TotAssets_{i,j,c,t-1} + \beta_2 PPE_{i,j,c,t} + \beta_3\left(\Delta Rev_{i,j,c,t} - \Delta AR_{i,j,c,t}\right) \\
&+ \beta_4 CFO_{i,j,c,t-1} + \beta_5 CFO_{i,j,c,t} + \beta_6 CFO_{i,j,c,t+1} + \beta_7 Open_{c,t} + \beta_8 Size_{i,j,c,t} \\
&+ \beta_9 Leverage_{i,j,c,t} + \beta_{10} Growth_{i,j,c,t} + \beta_{11} Std(Sales)_{i,j,c,t} + \beta_{12} NOA_{i,j,c,t-1} \\
&+ \beta_{13} GDP_{c,t} + \beta_{14} Inflation_{c,t} + \beta_{15} TradeOpen_{c,t} + \beta_{16} GovExp_{c,t} \\
&+ \beta_{17} FinDev_{c,t} + \beta_{18} IFRS\_Post_{c,t} + Country\ Fixed\ Effects \\
&+ Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \upsilon_{i,j,c,t}
\end{aligned}
\tag{1}
$$

where $ACC_{i,j,c,t}$ is working capital accruals or total accruals. *WC_ACC* is working capital accruals, measured as the change in current assets minus the change in current liabilities minus the change in cash plus change in short-term debt (change in cash and short-term debt are included in the calculate to adjust for current liabilities used for financing). *TOT_ACC* is total accruals and is measured as working capital accruals minus depreciation expense. *1/TotAssets* is the inverse of total assets in year t-1. $CFO_{t-1,t,t+1}$ are cash flows from operations in year *t−1, t,* and *t+1* scaled by total assets in year t-1. *PPE* is net property, plant, and equipment, scaled by total assets in year t-1. Δ*REV*-Δ*AR* is the change in sales minus the change in accounts receivable, scaled by total assets in year t-1. *Open* is one of the measures for equity market openness. *Size* is the natural logarithm of total sales revenue. *Leverage* is book leverage, defined as long-term debt plus the current portion of long-term debt, scaled by total assets. *Growth* is sales growth, calculated as sales growth from year t − 1 to t. *Std(sales)* is operating volatility, defined as the standard deviation of sales over the past three years, that is, t, t − 1, t − 2. *NOA* is net operating assets, calculated as the sum of shareholders equity and interest-bearing debt, minus cash assets, scaled by sales. *GDP Growth* is the percentage change in real GDP for a given country over the year. *Inflation* is the rate of price change in the economy as measured by the annual growth rate

of the GDP implicit deflator. *TradeOpen* is trade openness measured as the sum of imports and exports of goods and services divided by GDP. *GovExp* is general government final consumption expenditure scaled by GDP. *FinDev* is financial development measured as private credit to GDP. *IFRS_Post* is a dummy variable equals to 1 if the country is on or after the year of IFRS adoption, and zero otherwise. Following prior literature, all firm-level control variables are winsorized by the whole sample at 1% and 99% to eliminate the possible influence of outliers.

Based on the previous studies, we expect the coefficients of sales growth and lead and lagged cash flow from operations to be positive and significant, while the coefficients of present cash flows to be negative and significant. *PPE* is expected to be negatively related to total accruals due to the fact that depreciation charges partially come from fixed assets. Country and industry fixed effects are included to capture any systematic variances in accruals across our sample countries or industries. Year fixed effects are also included in the model to adjust for any time trend exhibited by our sample firms during the sample period. We cluster standard errors by country to address any correlations across time or firms in the same country. In robustness checks, we also substitute country and industry fixed effects with firm fixed effects to control for firm-specific and time-invariant characteristics. Our primary empirical predictions are that discretionary accruals will be significantly positive during the equity market opening periods. Specifically, we expect to see β_7 in equation (1) to be positive and significant.

4. Equity market openness and earnings management

4.1 Main evidence

Table 3 presents the estimation results of the regression based on Equation (1), which examines sample-wide earnings management in periods around the opening of equity markets. The first two columns report results of using the binary indicator of equity market openness.

Country-, industry-, and year- fixed effects are included in the regressions. Standard errors are robust to heteroscedasticity and are clustered at the country level. In the last two columns we repeat these tests by replacing country and industry fixed effects with firm fixed effects.

Consistent with H1, the coefficients of equity market openness on both total accruals and working capital accruals in all four columns are positive and statistically significant. On average, discretionary accruals increase reported ROA by more than 1% point in the event year. The control variables have predicted signs and are in general consistent with the prior literature. Specifically, accruals are positively related to sales growth, lead and lag cash flows from operations and negatively related to present cash flows. Net property, plant and equipment are negatively related to total accruals because of its contribution to the depreciation expense. For firm characteristics, on average, accruals increase with firm size, leverage, and growth, while decrease with operating volatility and net operating assets. For country level economic indicators, accruals are positively related to inflation, trade openness, and negatively related to government expenditure and financial development. The results correspond to previous findings that financially developed economies embrace higher earnings quality compared to less developed ones (Leuz et al., 2003; Burgstahler et al., 2006). Meanwhile, it suggests that the positive effect of equity market openness on earnings management remains robust even after controlling for the economic development and other time-varying country level characteristics. Results are similar, but with a bit smaller effect sizes, when including firm fixed effects.

Collectively, we show that firms from countries that are opening their equity market exhibit income-increasing earnings management during the official opening periods[12]. This is

[12] In our un-tabulated results, we investigate the robustness of the liberalization effect by using an alternative measure of financial liberalization: the change in the Equity market restrictions index from Fernández et al. (2016). This measure is a continuous variable which captures the regulatory change in the equity market restrictions based

consistent with our main hypothesis H1. When equity market opens to foreign investors, it brings financing opportunities to domestic firms, and it is hard to argue that theses financing opportunities could be easily influenced by individual firms' decisions. Such external financing incentives will induce firms exhibiting upward earnings management if firms want to impress the potential investors with past performance. Thus, equity market opening will have a positive effect on firms' upward earnings management.

4.2 Robustness tests

Next, we conduct several robustness tests for our main regression. First, we investigate the timing of the earnings management using our *Opening* variable. Instead of just an indicator for the opening year, we also include indicators for the year before the opening and the year after. We also present our results based on two samples, the liberalizing sample with only countries that had equity market liberalization during our sample period, and the full sample with both open markets and that are never opened during our sample period in the sample. Consistent with the opening driving the earnings management, rather than a generic time trend, we find no consistent evidence of upward earnings management in the year before the opening. Although some of them are positive and significant with country and industry fixed effects, but these results for the year before and after are not significant or even negatively significant after including firm fixed effects. We do find some evidence that firms are associated with positive discretionary accruals after opening, this could be consistent with a desire to keep earnings high during/soon after an equity issuance.

Second, we want to see whether our results are robust to the removal of countries that have open markets or never opened during our sample periods. Panel B of table 4 shows the

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on information from Annual Report of Exchange Arrangements and Exchange Restrictions published by the IMF for the period 1995-2013. The estimation results are similar to what we have obtained here.

estimation results based on the sample only including economies that have an opening event during our sample period. Results are consistent with the main findings in Table 3, with similar effect sizes and significance. Results using firm fixed effects are slightly stronger in this restricted sample.

Third, Collins et al. (2017) argue that firm growth plays an important role in explaining the discretionary accruals and the inclusion of growth quintiles in the Modified Jones-type models exhibit high power in explaining the non-linear relationship between growth and firm performance. Therefore, in order to address the concern that our results may be naturally driven by firms' growth, we control for three firm growth measures as suggested in Collins et al. (2017). We calculate current period growth proxy ROA as the net income scaled by year t-1 total assets for firm i during the current year (i.e., $NI_{i,t}/TotAssets_{i,t-1}$); backward-looking growth proxy SG as the yearly differenced sales growth (i.e., $(Sales_{i,t}- Sales_{i,t-1})/Sales_{i,t-1}$); forward-looking growth proxy MB as the market-to-book ratio for equity at the beginning of the year (i.e., $Market\ Value_{i,t-1}/Book\ Value_{i,t-1}$). Specifically, we estimate the following equation:

$$ACC_{i,j,c,t} = \alpha_0 + \beta_1 Open_{c,t} + \sum_k \beta_{2,k} ROA\_Dum_{k,i,j,c,t} + \sum_k \beta_{3,k} SG\_Dum_{k,i,j,c,t} + \sum_k \beta_{4,k} MB\_Dum_{k,i,j,c,t} + \gamma X_{i,j,c,t} + \delta X_{c,t} + Country\ Fixed\ Effects + Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \upsilon_{i,j,c,t} \quad (2)$$

where $ACC_{i,j,c,t}$ is working capital accruals or total accruals. *Open* is the indicator for equity market openness. The dummy variable $SG\_Dum_{k,i,j,c,t}$ takes the value 1 if SG from year t-1 to t for firm i belongs to the k^{th} quintile of SG in the sample, and 0 otherwise. To avoid introducing perfect multicollinearity, we include dummy variables only for quintile k = 1, 2, 4, and 5.

Quintile dummy variables for ROA and MB have similar definitions. *X* represents all other variables that are detailed in equation (1).

The estimation results are shown in Table 4 Panel C. Like Collins et al. (2017), our results show that after controlling for firm growth, the explanatory power of our model to discretionary accruals increases by about 4%. The coefficients on the different quintiles of growth measures are indeed different as prior studies document. Moving from ROA quintile 1 to 5, the coefficients changes from significant negative to significant positive, suggesting the non-linear relationship between firms' current growth and discretionary accruals. Similar pattern shows up on SG quintiles as well. As for the coefficients of MB, the pattern is the opposite: moving from MB quintile 1 to 5, the coefficients changes from significant positive to negative (although we only find significance in some of the results). After controlling all these firm level growth measures, the coefficients of our main independent variable *Opening* are still significantly positive, and robust to both firm and country, industry fixed effects.

Taken together, through these alternative specifications, we are more confident to conclude that in general, equity market openness is related to firms' upward earnings management. This result is not sensitive to the usage of different measurements of the equity market openness, nor in different sample size or the estimation with extra firm growth controls and firm fixed effects.

5. Cross-sectional variations on the equity market openness and earnings management

After establishing overall evidence of upward earnings management during opening periods, we next explore a couple of context-specific factors that we predict would generate cross-sectional variation in the incentives for firms' upward earnings management in our setting. In our first cross-sectional test, we examine the sensitivity of our results on firms' need of external financing. Specifically, we explore both industry-level and firm-level heterogeneity in

external financing dependence, and we use both ex-ante and ex-post measure of external financing need to see whether our results are specifically stronger among firms that are highly dependent on external equity financing. Next, we examine the role of different firm-level stakeholders in constraining or encouraging firm managers engaging in earnings management. We examine firm heterogeneity in their auditors, analyst coverage, and domestic institutional holders to see what the role of these stakeholders are playing in firms' financial reporting decision makings. We then explore whether our results vary among different institutional features, such as legal enforcement. We use several legal enforcement measures that are reflecting the quality of institutions from different angels to provide further evidence on the role of institutional characteristics that might contribute to firms' upward earnings management.

5.1 The Need of External Capital

5.1.1 Equity finance dependence

We first explore the effect of equity finance dependence on the relation between equity market openness and earnings management. With stronger external finance dependence, firms are more likely to rely on financing opportunities in the equity market. Therefore, we predict that the effect of equity market openness on earnings management is more pronounced in external finance dependent sectors. Specifically, we obtain estimation results based on the following equation:

$$ACC_{i,j,c,t} = \alpha_0 + \beta_1 Open_{c,t} + \beta_2 Extfin_j + \beta_3 Open_{c,t} * Eqfin_j + \gamma X_{i,j,c,t} + \delta X_{c,t} + Country\ Fixed\ Effects + Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \upsilon_{i,j,c,t} \quad (3)$$

where $ACC_{i,j,c,t}$ is working capital accruals or total accruals. *Open* is the indicator for equity market openness. $Extfin$ is the sectoral external finance dependence. X represents all other variables that are detailed in equation (1). We cluster standard errors by country and we predict the coefficient of interest β_3 to be positive and significant.

As detailed in Section 3.1.2, we use three measures of sectoral dependence on equity finance. The first and most basic measure is the external equity finance dependence *Extfin*, which is calculated as the industry median ratio of the net equity issuance amount to capital expenditure. The second measure is *R&D intensity*, calculated as the industry median ratio of R&D spending scaled by total assets. The third measure is *Investment Intensity*, calculated as the industry median ratio of capital expenditure to net property, plant and equipment. All these three measures are constructed by industry using all publicly traded firms in each SIC two-digit industry in the United States from 1980 to 1989 following Rajan and Zingales (1998).

We report the results in Table 5. Because the equity finance dependence index varies at the sectoral level, the main effects will be absorbed by industry fixed effects. The first two columns show the results of using external finance dependence *Extfin*. As we can see, all the coefficients of interaction terms are positive and significant across the four columns. Columns (3) and (4) show the results of using R&D intensity *RD_intensity,* columns (5) and (6) show the results using investment intensity *Inv_intensity*. All interaction terms are positive and significant, suggesting the strong differential effect among industries that are highly dependent on external finance. Consistent with our second hypothesis, these results reinforce our finding that the effect of equity market openness on earnings management is more pronounced in highly external finance dependent sectors.

5.1.2 Financial Constraints

Compared to unconstrained firms, firms that have limited ability to raise external fund are more concerned if financing opportunities exist in the equity market. Lamont et al. (2001) find that financially constrained firms are more sensitive to monetary policy and changes in macroeconomic conditions. Similarly, in countries with opening of the equity market, financially constrained firms are expected to be more incentivized to manage earnings upward. We therefore explore how financial constraints affect the relation between equity market openness and earnings management. Specifically, we estimate the following equation:

$$ACC_{i,j,c,t} = \alpha_0 + \beta_1 Open_{c,t} + \beta_2 Financial\ Constraints_{i,j,c,t-1} + \beta_3 Open_{c,t} * Financial\ Constraints_{i,j,c,t-1} + \gamma X_{i,j,c,t} + \delta X_{c,t} + Country\ Fixed\ Effects + Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \upsilon_{i,j,c,t} \quad (4)$$

where $ACC_{i,j,c,t}$ is working capital accruals or total accruals. *Open* is the indicator for equity market openness. $Financial\ Constraints$ is the firm-level proxy for financial constraints. *X* represents all other variables that are detailed in equation (1). We cluster standard errors by country. We predict the coefficient of interest β_3 to be positive and significant.

We use three proxies of financial constraints following prior literature: the *SA* index, the *WW* index and the *KZ* index. The *SA* index the index in year t-1 following Hadlock and Pierce (2010); the *WW* index is the index in year t-1 constructed following Whited and Wu (2006); *KZ* is the index in year t-1 constructed following Kaplan and Zingales (1997). For these proxies, higher values of the index indicate greater financial constraints. The exact computation of these measures is described in the Appendix.

The estimation results are presented in table 6. The first two columns show the results using the *KZ* index. Consistent our prediction in the second hypothesis, all four interactions are

positive and significant. The next two columns show the results of using *WW* index and the final two columns show the results of using *SA* index. As we can see, all interactions are positive and statistically significant across the specifications, suggesting that the positive effect is concentrated among firms that are financially constrained. Overall, these findings are consistent with our prediction in H2 that the positive effect of equity market opening on earnings management increases with firms' financially constraints.

5.1.3 New Equity Issuance

The tests in the prior two sections rely on constructs that are measured ex-ante. These are hypothesized to strengthen the motive to manage earnings upward because they indicate a need to attract new equity capital. The advantage of this approach is that since these constructs are ex-ante, they are more likely to be exogenous to the earnings management. The disadvantage is that not all these firms will actually issue equity. Therefore, as an alternative approach we also examine firms that actually issue equity. Our measure *Eqissue* indicates whether a firm is issuing equity during the subsequent year and is defined as the natural logarithm of shares outstanding (adjusted for stock splits) in year t+1 over shares outstanding (adjusted for stock splits) in year t. To gauge our findings here, we also use the measure from Godsell et al. (2017) that is defined as the shareholders' equity in year t+1 minus the sum of (shareholders' equity in year t-1 + net income in year t + net income in year t+1).

We therefore explore how the need for external capital affect the relation between equity market openness and earnings management. Specifically, we estimate the following equation:

$$ACC_{i,j,c,t} = \alpha_0 + \beta_1 Open_{c,t} + \beta_2 Eqissue_{i,j,c,t+1} + \beta_3 Open_{c,t} * Eqissue_{i,j,c,t+1} + \gamma X_{i,j,c,t} + \delta X_{c,t} + Country\ Fixed\ Effects + Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \upsilon_{i,j,c,t}$$

(5)

where $ACC_{i,j,c,t}$ is working capital accruals or total accruals. *Open* is the indicator for equity market openness. $Eqissue$ is a continuous measure of new equity issuance. *X* represents all other variables that are detailed in equation (1). We cluster standard errors by country. We predict the coefficient of interest β_3 to be positive and significant.

The estimation results are presented in table 7. All coefficients on the interaction terms are positive and three out of the four coefficients are statistically significant, suggesting that firms that have subsequent new equity issuance display higher discretionary accruals during equity market opening periods, compared to their other counterparts. The results are generally consistent with our prediction in H2 that firms in need of external capital have more incentives to engage in upward earnings management.

5.2 Firm-level Stakeholders: BigN auditors, Analysts and Institutional Holders

As the evidence we document so far point to the fact that firms on average engage in upward earnings management when their equity market opens to foreign investors, then next we may want to ask a natural question: what the role of firms' different stakeholders are playing in such a case during the opening period? For example, auditors tend to have disciplinary effect on firms' reporting actions because of their duty as overseer to firms, while existing investors might encourage managers to inflate earnings because they want to sell the shares to prospective investors at a higher price. In this case, different parties may have both enforcement effect and visibility effect to the firms, and we need to know which effect dominant.

Prior literature document that firms audited by BigN firms have significantly lower discretionary accruals than firms audited by non-BigN firms (see Dechow et al., 2010). In general, BigN auditors are reported to exhibit higher ability in refraining firms from financial

misreporting than other auditors. Therefore our fifth hypothesis is that the positive effect of equity market openness on earnings management is less pronounced in firms with BigN auditors. Correspondingly, we estimate the following equation:

$$ACC_{i,j,c,t} = \alpha_0 + \beta_1 Open_{c,t} + \beta_2 BigN_{i,j,c,t} + \beta_3 Open_{c,t} * BigN_{i,j,c,t} + \gamma X_{i,j,c,t} + \delta X_{c,t} + Country\ Fixed\ Effects + Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \upsilon_{i,j,c,t} \quad (6)$$

where $ACC_{i,j,c,t}$ is working capital accruals or total accruals. *Open* is the indicator for equity market openness. $BigN$ is a dummy variable equals to 1 if a firm is audited by a BigN auditor (auditors encoded between 1 to 8 in Capital IQ Global), and zero otherwise. *X* represents all other variables that are detailed in equation (1). We cluster standard errors by country. We predict the coefficient of interest β_3 to be negative and significant.

In further analysis we introduce the interaction term with analyst coverage and institutional ownership (especially domestic institutional investor ownership) separately into the above equation to see what kind of role these stakeholders are playing in our setting. Analyst coverage data is obtained from IBES and is measured as the natural logarithm of the total number of analysts following the firm in the previous year. Domestic institutional ownership (DIO) data is extracted from FactSet LionShares and is calculated as the percentage of domestic institutional ownership on firms' total shares outstanding (missing values are recoded as zero) in the previous year.

Table 8 presents the estimation results. From column (1) to (6), we obtain significant negative coefficients on the interaction term of opening and BigN auditors. These results are consistent our fifth hypothesis that BigN auditors mitigate earnings management behaviors by

constraining firms from financial misreporting. Column (3) and (4) show the results with the inclusion of analyst coverage and the coefficients are statistically significantly positive. Column (5) and (6) show the results with the inclusion of DIO and the coefficients are statistically significantly positive as well. These results suggest that visibility effect of these two parties dominant, rather than their monitoring role during the opening periods.

5.3 Institutional Environment

We then explore whether institutional environment matters from firms' financial reporting behaviors. We use one resource-based measure of public enforcement from Jackson and Roe (2009): Budget per million US dollar of GDP (extended sample, with extrapolated observations) is the securities regulators' 2005 budget divided by the country's GDP. We also use another measure, Perception of Corruptions Index (PCI), to measure the corruption level of institutions: *PCI* is a continuous measure of country-level corruption and is time-varying. The variable is rescaled so that higher value in the index PCI, the more corruption in the country. Legal enforcement measure is taken from Brown, Preiato and Tarca (2014) and is processed similarly as in Godsell et al. (2017): *Total Enforcement* is the sum of the scores of the following two measures: *Audit* measures the audit environment in the country, *Enfor* measures the regulatory enforcement directly related to financial statements.

Our estimation results are shown in Table 9. Column (1) and (2) report the results of using the resource-based public enforcement measure, column (3) and (4) presents the results on perceptions of corruption, and the last two columns shows the estimation results of using total legal enforcement which reflects the audit and financial reporting environment. As we can see, the coefficients on the interaction term of opening and Budget are positive and significant, suggesting that institutions with stronger public enforcement are likely constrain firms from

doing upward earnings management. The coefficients on the interaction term of opening and perceptions of corruption, on the other hand, are significantly negative, suggesting institutions with higher level of corruption tend to encourage firms' earnings management.

The interaction term in the last two columns are negative but, unfortunately, not significant. In fact, we have tried other legal enforcement measures that are used in Godsell et al. (2017), and surprisingly consistently, we do not find any significant results. Consequently, we do not have strong enough evidence to argue that financial reporting related legal enforcement would have any power in constraining firms from conducting financial misreporting behaviors.

6. Conclusion

Equity financing is a vital resource of capital for firms in many countries and there is significant academic interest in the equity market financing opportunities. Previous studies document that macroeconomic changes and regulatory reforms are double-edged swords for publicly listed firms, as they provide more financing opportunity, while inducing more competition as well. As a result, how firms respond to these regulatory changes (especially in the equity market) are quite intriguing in the sense that they can either choose to be honest to gain investors' trust, or to mask firm performance to attract investors.

In this paper, we examine how equity market openness is associated with firms' earnings management. Using international evidence, we find that firms exhibit significant income-increasing earnings management during the equity market opening periods. Our results are robust to the use of binary and continuous values of the measurement of equity market openness, the inclusion of firm fixed effects, and the exclusion of pure control groups, and are concentrated in the year of opening. Cross-sectionally, we find that the positive relation between equity market openness and earnings management is more pronounced in sectors that are more

dependent on external equity finance, and among firms that are more financially constrained. This result is consistent with the idea that the capital market consequences of income-increasing earnings management could enhance the benefits the external finance dependent firms receive in the form of capital raising from foreign investors during the opening periods. In other words, with stronger equity finance dependence, firms are more likely to use financing opportunities in the equity market.

Furthermore, we find that firms with BigN auditors do less earnings management, while firms with higher analyst coverage and domestic institutional ownership exhibit higher discretionary accruals during the opening periods. This result is consistent with prior literature that BigN auditors mitigate earnings management behaviors by constraining firms from financial misreporting, while analysts and domestic investors put pressure on firm managers to enhance firms' visibility to foreign prospective investors. Lastly, we show some evidence that firms from economies with better institutional quality would do less earnings management, suggesting the effectiveness of monitoring role from local legal institutions.

Our paper makes several contributions to the literature. We add to the literature on financing opportunities and earnings management. We show that when facing financing opportunities brought by equity market opening, it provides special financing incentives for firms to be attractive to potential investors, especially for firms dependent on equity finance and with financial constraints. Unlike IPOs or SEOs, it is harder to argue that these decisions are driven by firms' intrinsic need of external funds. Our paper also adds to the literature documenting the benefits and costs of financial globalization in the finance and economic literature. With few exceptions, previous studies document mainly the benefits of financial globalization such as facilitating investment, firm growth and other operational performance.

Our paper, however, contributes to the literature by providing evidence on some of the costs of financial globalization. When an equity market opens to foreign investors, firms seem to forego the long run growth but try to seize short run gain instead, which in the aggregate may lead to capital misallocation.

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Appendix

Table A1. Variables Definition

Variables	Variables Definition	Data Source
WC_ACC	Working capital accruals, measured as the change in current assets minus the change in current liabilities minus the change in cash plus change in short-term debt (change in cash and short-term debt are included in the calculate to adjust for current liabilities used for financing).	Capital IQ Global
TOT_ACC	Total accruals, measured as the change in current assets minus the change in current liabilities minus the change in cash plus change in short-term debt (change in cash and short-term debt are included in the calculate to adjust for current liabilities used for financing) minus depreciation expense.	Capital IQ Global
Opening	A dummy variable representing the official liberalization in the equity market, which takes the value of 1 for a given country at the year of official liberalization, otherwise equals to 0. The official liberalization year is collectively from Bekaert et al. (2005), Bekaert et al. (2013), and Chan and Kwok (2017).	Bekaert et al. (2005), Bekaert et al. (2013), Chan and Kwok (2017)
Firm Characteristics		
1/TotAssets	The inverse of total assets in year t-1.	Capital IQ Global
$CFO_{t-1,t,t+1}$	Cash flows from operations in year t − 1, t, and t + 1 scaled by total assets in year t-1.	Capital IQ Global
PPE	Net property, plant, and equipment, scaled by total assets in year t-1.	Capital IQ Global
ΔREV-ΔAR	The change in Sales minus the change in Accounts Receivable, scaled by total assets in year t-1.	Capital IQ Global
Size	Firm size measured as the natural logarithm of market capitalization in US dollars.	Capital IQ Global
Leverage	Book leverage, defined as long-term debt plus the current portion of long-term debt, scaled by total assets.	Capital IQ Global
Growth	Backward-looking growth proxy, calculated as the yearly differenced sales growth (i.e., $(Sales_{i,t} - Sales_{i,t-1})/Sales_{i,t-1}$).	Capital IQ Global
Std(sales)	Operating volatility, defined as the standard deviation of sales over the past three years, that is, t, t − 1, t − 2.	Capital IQ Global
NOA	Net operating assets, calculated as the sum of shareholders' equity and interest-bearing debt, minus cash assets, scaled by sales.	Capital IQ Global
ROA	Current period growth proxy, calculated as the net income scaled by year t-1 total assets for firm i during the current year (i.e., $NI_{i,t}/TotAssets_{i,t-1}$);	Capital IQ Global
MB	forward-looking growth proxy, calculated as the market-to-book ratio for equity at the beginning of the year (i.e., $Market\ Value_{i,t-1}/Book\ Value_{i,t-1}$).	Capital IQ Global
SA index	$= (-0.737 * \text{Size}_{it}) + (0.043 * \text{Size}_{it}{}^2) - (0.040 * \text{Age}_{it})$, where Size is the natural logarithm of total assets, Age is the number of years the firm has been on Capital IQ Global with a non-missing stock price.	Capital IQ Global
WW index	$= -0.091 * \text{CF}_{it} - 0.062 * \text{DIVPOS}_{it} + 0.021 * \text{TLTD}_{it} -$	Capital IQ Global

	$0.044 * \text{LNTA}_{it} + 0.102 * \text{ISG}_{it} - 0.035 * \text{SG}_{it}$, where CF is cash flow from operations divided by total assets, DIVPOS is an indicator take the value of one if the firms pays cash dividends; TLTD is long term debt divided by total assets; LNTA is natural logarithm of total assets, ISG is the firm's three-digit SIC industry sales growth, SG is firm sales growth.	
KZ index	$= -1.001909 * CF_{it} + 3.93193 * TLTD_{it} - 39.36780 * TDIV_{it} - 1.1314759 * CASH_{it} + 0.2826389 * Q_{it}$, where CF is cash flow scaled by total assets; TLTD is long-term debt scaled by total assets; TDIV is dividend scaled by total assets, CASH is cash and short-term investment scaled by total assets, and Q is Tobin's Q.	Capital IQ Global
BigN	BigN auditors, equals to 1 if a firm is audited by Big auditors encoded between 1 to 8 in Capital IQ Global, and zero otherwise.	Capital IQ Global
No. of Analysts	Firms' analyst coverage, calculated as the arithmetic mean of the 12 monthly numbers of earnings forecasts for firm i extracted from the Institutional Brokers' Estimate System summary file over fiscal year t following He and Tian (2013).	I/B/E/S
DIO	Firms' domestic institutional ownership, defined as the percentage of domestic institutional ownership on firms' total shares outstanding (missing values are recoded as zero).	FactSet Stock Ownership
Eqissue1	Firms' new equity issuance, defined as the natural logarithm of the shares outstanding (adjusted for stock splits) in year t+1 over shares outstanding (adjusted for stock splits) in year t.	Capital IQ Global
Eqissue2	Alternative measure of firms' new equity issuance, defined as the shareholders' equity in year t+1 minus the sum of (shareholders' equity in year t-1 + net income in year t + net income in year t+1) by following Godsell et al. (2017).	Capital IQ Global
Industry Characteristics		
EqFin	Industry-level dependence on external equity finance, measured as the ratio of the net equity issuance amount to capital expenditure for the median publicly traded firm in each industry in the United States from 1980 to 1989 following Rajan & Zingales (1998).	Capital IQ North America
Inv_Intensity	Industry-level Investment Intensity, measured as the industry median ratio of capital expenditure to net property, plant and equipment of all U.S. public firms from 1980 to 1989 following Rajan & Zingales (1998).	Capital IQ North America
R&D Intensity	Industry-level R&D intensity, the industry median ratio of R&D expenditures to total assets following Li (2011), using all U.S. public firms from 1980 to 1989.	Capital IQ North America
Country characteristics		
GDP Growth	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	World Bank WDI
Inflation	Inflation rate, the rate of price change in the economy as measured by	World Bank WDI

	the annual growth rate of the GDP implicit deflator. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.	
TradeOpen	Trade openness measured as the sum of imports and exports of goods and services divided by GDP.	World Bank WDI
GovExp	General government final consumption expenditure as a percentage of GDP.	World Bank WDI
FinDev	Financial Development measured as Private credit by deposit money banks to GDP.	World Bank GFD database
IFRS_Post	A dummy variable equals to 1 if the country is on or after the year of IFRS adoption and zero otherwise.	IFRS website, George et al. (2016)
Budget	Resource-based measure of public enforcement measured as the securities regulators' 2005 budget divided by the country's GDP (extended sample, with extrapolated observations)	Jackson and Roe (2009)
Perceptions of Corruption	A continuous measure of country-level corruption from *International Transparency* and is rescaled so that higher value indicates more corruption in the country.	International Transparency
Total Enforcement	A continuous measure of country-level legal enforcement and is calculated as the sum of *Audit* and *Enfor*: *Audit* measures the audit environment in the country, *Enfor* measures the regulatory enforcement directly related to financial statements.	Brown, Preiato and Tarca (2014)

Tables and Figures

Table 1: Sample Composition

Panel A: Breakdown by country

	No. of firms	*% of total firms*	*No. of firm-years*	*% of total firm-years*	*Year of First Observation*	*Open year*
Panel A.1. Economies that opened their equity markets during the sample period						
Argentina	59	0.25	409	0.21	1990	1989*
Brazil	271	1.14	1,745	0.88	1992	1991*
Bulgaria	6	0.03	26	0.01	1999	2007
Chile	143	0.60	1,201	0.61	1990	1992
China	2,306	9.70	20,578	10.38	1989	2014[b]
Colombia	33	0.14	217	0.11	1992	1991*
Croatia	60	0.25	337	0.17	1990	2013[a]
Cyprus	42	0.18	271	0.14	1997	2004[a]
Czech Republic	25	0.11	177	0.09	1995	2004[a]
Egypt, Arab Rep.	73	0.31	277	0.14	1997	1992*
Estonia	16	0.07	140	0.07	1997	2004[a]
Hungary	25	0.11	190	0.10	1997	2004[a]
India	2,485	10.46	15,225	7.68	1991	1992
Indonesia	96	0.40	364	0.18	1991	1989*
Israel	298	1.25	1,813	0.91	1992	1993
Jamaica	16	0.07	157	0.08	1995	1991*
Jordan	72	0.30	227	0.11	1997	1995*
Kenya	30	0.13	201	0.10	1992	1995
Korea, Rep.	1,088	4.58	7,244	3.65	1995	1992*
Latvia	22	0.09	172	0.09	1998	2004[a]
Lithuania	34	0.14	242	0.12	1997	2004[a]
Malta	9	0.04	82	0.04	1997	1992*
Mauritius	19	0.08	127	0.06	1996	1994*
Mexico	106	0.45	1,097	0.55	1990	1989*
Nigeria	73	0.31	362	0.18	1993	1995
Oman	46	0.19	303	0.15	2001	1999*
Pakistan	264	1.11	1,838	0.93	1995	1991*
Peru	75	0.32	637	0.32	1995	1992*
Philippines	161	0.68	1,526	0.77	1990	1991
Poland	455	1.91	2,774	1.40	1996	2004[a]
Romania	34	0.14	113	0.06	1997	2007[a]
Saudi Arabia	96	0.40	478	0.24	1994	1999
Slovak Republic	8	0.03	47	0.02	1997	2004[a]
Slovenia	23	0.10	160	0.08	1997	2004[a]
South Africa	294	1.24	2,575	1.30	1989	1996
Sri Lanka	176	0.74	1,169	0.59	1995	1991*
Tunisia	19	0.08	100	0.05	1998	1995*
Turkey	252	1.06	1,374	0.69	1990	1989*
Venezuela, RB	17	0.07	113	0.06	1992	1990*
Panel A.2. Economies that opened their equity markets before the start of the sample period						
Australia	1,608	6.77	11,791	5.95	1988	Open Market
Austria	58	0.24	411	0.21	1989	Open Market
Belgium	89	0.37	663	0.33	1989	Open Market
Denmark	146	0.61	1,464	0.74	1989	Open Market
Finland	122	0.51	1,246	0.63	1989	Open Market
France	519	2.18	3,889	1.96	1989	Open Market
Germany	655	2.76	5,291	2.67	1989	Open Market

Greece	200	0.84	1,370	0.69	1995	Open Market
Hong Kong, China	1,296	5.45	12,232	6.17	1989	Open Market
Ireland	40	0.17	268	0.14	1989	Open Market
Italy	255	1.07	2,111	1.07	1990	Open Market
Japan	3,431	14.44	38,724	19.54	1988	Open Market
Luxembourg	11	0.05	84	0.04	1990	Open Market
Malaysia	957	4.03	9,248	4.67	1989	Open Market
Netherlands	152	0.64	1,314	0.66	1989	Open Market
Norway	132	0.56	682	0.34	1989	Open Market
Singapore	774	3.26	7,311	3.69	1989	Open Market
Spain	140	0.59	1,172	0.59	1990	Open Market
Sweden	487	2.05	4,011	2.02	1990	Open Market
Switzerland	208	0.88	2,257	1.14	1989	Open Market
Thailand	494	2.08	4,769	2.41	1990	Open Market
United Kingdom	2,208	9.29	19,634	9.91	1988	Open Market
Panel A.3. Economies that never opened during the sample period						
Kuwait	76	0.32	372	0.19	1995	NA
Russian Federation	150	0.63	896	0.45	1997	NA
Vietnam	226	0.95	917	0.46	2003	NA
Total	23,761	100	198,215	100		

Panel B: Breakdown by year

Year	*No. of firms*	*% of total firms*	*Cumulative %*
1996 and before	5,941	2.99	2.99
1997	2,146	1.08	4.08
1998	2,911	1.47	5.55
1999	4,911	2.48	8.03
2000	6,156	3.11	11.13
2001	7,951	4.01	15.14
2002	8,718	4.4	19.54
2003	9,477	4.78	24.32
2004	10,036	5.06	29.39
2005	11,083	5.59	34.98
2006	11,722	5.91	40.89
2007	12,689	6.4	47.29
2008	13,218	6.67	53.96
2009	13,700	6.91	60.87
2010	14,298	7.21	68.09
2011	14,955	7.54	75.63
2012	15,805	7.97	83.6
2013	16,583	8.37	91.97
2014	15,915	8.03	100
Total	198,215	100	

Notes: This table presents the sample composition in empirical analyses. Panel A presents the sample composition by country. Panel B describes the sample composition by year. *No. of firms* is the number of unique firms. *% of total firms* is the percentage of unique firms in the overall firm observations. *No. of firm-years* is the total number of firm-year observations. % *of total firm-years* is the percentage of firm-year numbers in the overall firm-year observations. *Year of first observation* is the first year of observation (with no missing accruals measures) appeared in the Capital IQ Global dataset. *Open year* is the official liberalization year of equity market from Bekaert et al. (2005), supplemented by Bekaert et al. (2013) (denoted by [a]) and Chan and Kwok (2017) (denoted by [b]). * denotes the start year of sample country is later than the opening year. The sample period is from 1989 to 2014.

Table 2: Descriptive Statistics

Panel A: Sample description

	Full sample (N=198,215)					Opening (N = 66,088)	Fully Open (N = 129,942)	Never Open (N = 2,185)
Main	Mean	SD	Q1	Median	Q3	Mean	Mean	Mean
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
WC_ACC	0.014	0.125	-0.037	0.005	0.054	0.021	0.010	0.019
TOT_ACC	-0.025	0.129	-0.080	-0.032	0.020	-0.015	-0.030	-0.029
Opening	0.012	0.107	0.000	0.000	0.000	0.035	0.000	0.000
$1/TotAssets_{t-1}$	0.029	0.092	0.002	0.006	0.018	0.026	0.030	0.023
PPE_t	0.630	0.438	0.286	0.567	0.895	0.662	0.612	0.721
ΔREV_t-ΔAR_t	0.080	0.302	-0.042	0.044	0.166	0.098	0.070	0.087
CFO_{t-1}	0.045	0.186	-0.004	0.060	0.123	0.062	0.036	0.105
CFO_t	0.045	0.173	-0.002	0.060	0.121	0.061	0.036	0.097
CFO_{t+1}	0.046	0.170	-0.001	0.060	0.120	0.063	0.036	0.095
$Size_t$	4.742	2.098	3.273	4.678	6.130	4.769	4.733	4.443
$Leverage_t$	0.248	0.229	0.058	0.207	0.374	0.285	0.229	0.296
$Growth_t$	0.145	0.511	-0.057	0.071	0.221	0.159	0.138	0.147
$Std(sales)_t$	0.231	0.272	0.081	0.147	0.267	0.239	0.227	0.233
NOA_{t-1}	1.468	4.689	0.281	0.529	1.003	1.268	1.573	1.292
$BigN_{t-1}$	0.362	0.480	0.000	0.000	1.000	0.199	0.443	0.400
DIO_{t-1}	0.026	0.067	0.000	0.000	0.017	0.018	0.030	0.000
$No.\ of\ Analysts_{t-1}$	2.346	5.078	0.000	0.000	2.000	1.570	2.766	0.862
$GDP\ Growth_t$	3.677	3.712	1.528	3.071	6.224	6.412	2.274	4.431
$Inflation_t$	0.027	0.113	-0.001	0.020	0.039	0.054	0.012	0.108
$TradeOpen_t$	0.928	1.012	0.410	0.539	0.864	0.594	1.096	1.022
$GovExp_t$	0.159	0.044	0.120	0.170	0.192	0.138	0.171	0.128
$FinDev_t$	1.024	0.408	0.826	1.037	1.215	0.728	1.181	0.649
$IFRS\_Post_t$	0.417	0.493	0.000	0.000	1.000	0.457	0.399	0.319

Panel B: Univariate analysis

	Opening				
	1	0	Differences	T-stats	P-value
TOT_ACC	0.005*	-0.025***	0.030***	11.28	<0.001
	(0.0027)	(0.0003)	(0.0027)		
WC_ACC	0.034***	0.014***	0.020***	7.90	<0.001
	(0.0027)	(0.0003)	(0.0026)		

Notes: This table presents the descriptive statistics of main variables used in the empirical analysis. In panel A, N is the total number of firm-year observations. Mean is the average value of each variable. SD is the standard deviation of each variable. Q1 is the first quartile, median is the second quartile, and Q3 is the third quartile of the distribution of each variable. *WC_ACC* is working capital accruals, measured as the change in current assets minus the change in current liabilities (adjusted for current liabilities used for financing). *TOT_ACC* is total accruals, measured as *WC_ACC* minus depreciation expense. *Opening* is a dummy variable equals to 1 if a firm is in a country at the year of official equity market opening, and zero otherwise. $CFO_{t-1,t,t+1}$ are cash flows from operations in year *t−1, t,* and *t+1* scaled by total assets in year t-1. *PPE* is net property, plant, and equipment, scaled by total assets in year t-1. ΔREV-ΔAR is the change in sales minus the change in accounts receivable, scaled by total assets in year t-1. *Size* is the natural logarithm of total sales revenue. *Leverage* is book leverage, defined as long-term debt plus the current portion of long-term debt, scaled by total assets. *Growth* is sales growth, defined as sales growth from t − 1 to t. *Std(sales)* is operating volatility, defined as the standard deviation of sales over the past three years, that is, t, t − 1, t − 2. *NOA* is net operating assets, calculated as the sum of shareholders' equity and interest-bearing debt, minus cash assets, scaled by sales. *GDP Growth* is the percentage change in real GDP for a given country over the year.

Inflation is the rate of price change in the economy as measured by the annual growth rate of the GDP implicit deflator. *TradeOpen* is trade openness measured as the sum of imports and exports of goods and services divided by GDP. *GovExp* is general government final consumption expenditure scaled by GDP. *FinDev* is financial development measured as private credit to GDP. *IFRS_Post* is a dummy variable equals to 1 if the country is on or after the year of IFRS adoption, and zero otherwise. Panel B presents the comparative statistics between the liberalization year (Opening = 1) and all other periods (Opening = 0). The sample period is from 1989 to 2014. Standard errors in parentheses: ∗∗∗, ∗∗, and ∗ denote significance levels at 1%, 5%, and 10%, respectively.

Table 3: Main Regression Results

	(1)	(2)	(3)	(4)
VARIABLES	TOT_ACC	WC_ACC	TOT_ACC	WC_ACC
Opening	0.0264***	0.0292***	0.0078*	0.0105**
	(0.000)	(0.000)	(0.075)	(0.015)
$1/TotAssets_{t-1}$	-0.0274	-0.0040	0.0186	0.0331
	(0.186)	(0.842)	(0.609)	(0.421)
PPE_t	-0.0290***	0.0056***	0.0030	0.0313***
	(0.000)	(0.006)	(0.540)	(0.000)
ΔREV_t-ΔAR_t	0.0524***	0.0567***	0.0375***	0.0420***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t-1}	0.1394***	0.1465***	0.1137***	0.1166***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_t	-0.4541***	-0.4407***	-0.4774***	-0.4680***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t+1}	0.1304***	0.1374***	0.0987***	0.1017***
	(0.000)	(0.000)	(0.000)	(0.000)
$Size_t$	0.0054***	0.0055***	0.0166***	0.0164***
	(0.000)	(0.000)	(0.000)	(0.000)
$Leverage_t$	0.0121	0.0176**	0.0283***	0.0369***
	(0.143)	(0.033)	(0.004)	(0.001)
$Growth_t$	0.0184***	0.0216***	0.0177***	0.0206***
	(0.001)	(0.000)	(0.000)	(0.000)
$Std(sales)_t$	-0.0107***	-0.0052*	-0.0011	-0.0000
	(0.001)	(0.071)	(0.486)	(0.990)
NOA_{t-1}	-0.0008	-0.0016***	-0.0020***	-0.0024***
	(0.142)	(0.001)	(0.000)	(0.000)
$GDP\ Growth_t$	0.0010	0.0009	0.0011	0.0010
	(0.273)	(0.303)	(0.107)	(0.115)
$Inflation_t$	0.0079*	0.0124***	0.0109*	0.0142**
	(0.060)	(0.004)	(0.086)	(0.026)
$TradeOpen_t$	0.0118***	0.0107**	0.0139***	0.0123***
	(0.010)	(0.026)	(0.002)	(0.004)
$GovExp_t$	-0.1377	-0.1482	0.1074	0.0660
	(0.273)	(0.322)	(0.276)	(0.540)
$FinDev_t$	-0.0149**	-0.0163**	-0.0146**	-0.0173**
	(0.025)	(0.015)	(0.044)	(0.015)
$IFRS\_Post_t$	0.0085**	0.0032	0.0049**	-0.0001
	(0.036)	(0.506)	(0.035)	(0.974)
Country fixed effects	Yes	Yes		
Industry fixed effects	Yes	Yes		
Year fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects			Yes	Yes
Cluster at country level	Yes	Yes	Yes	Yes
N	198,215	198,215	198,215	198,215
Adjusted R^2	0.343	0.342	0.401	0.380

Notes: This table reports the baseline test that examines sample-wide earnings management in periods around the opening of equity market. Column (1) and (2) present results of estimating the specification model detailed in equation (1) using *Opening*, a dummy variable equals to 1 if a firm is in a country at the year of official equity market liberalization, and zero otherwise. Country-, industry- and year- fixed effects are included in the regressions. Column (3) to (4) repeat regressions by including firm and year fixed effects. *WC_ACC* is working capital accruals, measured as the change in current assets minus the change in current liabilities (adjusted for current liabilities used for financing). *TOT_ACC* is total accruals, measured as *WC_ACC* minus depreciation expense. *1/TotAssets* is the

inverse of total assets in year t-1. $CFO_{t-1,t,t+1}$ are cash flows from operations in year $t-1$, t, and $t+1$ scaled by total assets in year t-1. *PPE* is net property, plant, and equipment, scaled by total assets in year t-1. ΔREV-ΔAR is the change in sales minus the change in accounts receivable, scaled by total assets in year t-1. *GDP Growth* is the percentage change in real GDP for a given country over the year. *Inflation* is the rate of price change in the economy as measured by the annual growth rate of the GDP implicit deflator. *TradeOpen* is trade openness measured as the sum of imports and exports of goods and services divided by GDP. *GovExp* is general government final consumption expenditure divided by GDP. *FinDev* is financial development measured as private credit to GDP. *IFRS_post* is a dummy variable equals to 1 if the country is on or after the year of IFRS adoption, and zero otherwise. All other firm-level control variables are defined in Appendix. Standard errors are robust to heteroscedasticity and clustered at country level. Robust p-values are reported in parentheses: ∗∗∗, ∗∗, and ∗ denote significance levels at 1%, 5%, and 10%, respectively.

Table 4: Robustness checks

Panel A: Sample-wide regression results with Event year (Opening)

	OLS (Liberalizing sample)				OLS (Full sample)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	TOT_ACC	WC_ACC	TOT_ACC	WC_ACC	TOT_ACC	WC_ACC	TOT_ACC	WC_ACC
Event year t-1	0.0071	0.0081*	-0.0063**	-0.0049*	0.0129**	0.0145***	-0.0062	-0.0042
	(0.145)	(0.070)	(0.029)	(0.060)	(0.012)	(0.004)	(0.185)	(0.356)
Event year t	0.0244***	0.0260***	0.0090**	0.0109***	0.0282***	0.0313***	0.0067	0.0098**
	(0.000)	(0.000)	(0.013)	(0.001)	(0.000)	(0.000)	(0.145)	(0.026)
Event year t+1	0.0046	0.0060	0.0006	0.0024	0.0072	0.0102*	0.0053	0.0086
	(0.697)	(0.597)	(0.958)	(0.847)	(0.191)	(0.065)	(0.437)	(0.181)
$1/TotAssets_{t-1}$	0.0547***	0.0684***	0.1901***	0.2088***	-0.0273	-0.0038	0.0187	0.0332
	(0.000)	(0.000)	(0.003)	(0.003)	(0.189)	(0.849)	(0.608)	(0.420)
PPE_t	-0.0250***	0.0097***	0.0146***	0.0431***	-0.0290***	0.0055***	0.0030	0.0313***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.006)	(0.536)	(0.000)
ΔREV_t-ΔAR_t	0.0667***	0.0723***	0.0534***	0.0582***	0.0523***	0.0566***	0.0375***	0.0420***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t-1}	0.1225***	0.1345***	0.0893***	0.0948***	0.1394***	0.1465***	0.1137***	0.1166***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_t	-0.6076***	-0.5888***	-0.6435***	-0.6315***	-0.4539***	-0.4405***	-0.4775***	-0.4681***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t+1}	0.1031***	0.1145***	0.0581***	0.0613***	0.1303***	0.1373***	0.0988***	0.1018***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Size_t$	0.0088***	0.0090***	0.0181***	0.0179***	0.0054***	0.0054***	0.0166***	0.0164***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Leverage_t$	-0.0208	-0.0131	-0.0013	0.0057	0.0122	0.0178**	0.0283***	0.0369***
	(0.125)	(0.398)	(0.935)	(0.755)	(0.139)	(0.031)	(0.004)	(0.001)
$Growth_t$	0.0189***	0.0199***	0.0112***	0.0132***	0.0183***	0.0216***	0.0177***	0.0206***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
$Std(sales)_t$	-0.0076	-0.0048	0.0013	0.0023	-0.0107***	-0.0052*	-0.0012	-0.0000
	(0.109)	(0.349)	(0.626)	(0.390)	(0.001)	(0.071)	(0.485)	(0.983)
NOA_{t-1}	-0.0017***	-0.0023***	-0.0023***	-0.0028***	-0.0008	-0.0016***	-0.0020***	-0.0024***
	(0.000)	(0.000)	(0.005)	(0.002)	(0.143)	(0.001)	(0.000)	(0.000)
$GDP\ Growth_t$	-0.0008	-0.0009	-0.0009	-0.0009	0.0011	0.0010	0.0011	0.0010
	(0.340)	(0.279)	(0.143)	(0.147)	(0.224)	(0.240)	(0.135)	(0.137)
$Inflation_t$	0.0050**	0.0095***	0.0067**	0.0101***	0.0080*	0.0125***	0.0109*	0.0142**
	(0.042)	(0.001)	(0.019)	(0.001)	(0.064)	(0.004)	(0.084)	(0.024)

$TradeOpen_t$	-0.0286	-0.0309	0.0043	0.0002	0.0124***	0.0113***	0.0136***	0.0122***
	(0.167)	(0.112)	(0.751)	(0.988)	(0.003)	(0.009)	(0.002)	(0.004)
$GovExp_t$	-0.2099***	-0.2578***	-0.1226*	-0.1863***	-0.1253	-0.1344	0.1014	0.0616
	(0.001)	(0.001)	(0.067)	(0.001)	(0.296)	(0.343)	(0.315)	(0.577)
$FinDev_t$	0.0119	0.0082	0.0093	0.0045	-0.0149**	-0.0164**	-0.0145**	-0.0172**
	(0.475)	(0.610)	(0.417)	(0.678)	(0.023)	(0.014)	(0.046)	(0.016)
$IFRS\_Post_t$	0.0091**	0.0074*	0.0080**	0.0062	0.0084**	0.0031	0.0049**	-0.0002
	(0.012)	(0.079)	(0.049)	(0.160)	(0.036)	(0.518)	(0.040)	(0.958)
Country FE	Yes	Yes			Yes	Yes		
Industry FE	Yes	Yes			Yes	Yes		
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes			Yes	Yes
Cluster at Country level			Yes	Yes	Yes	Yes	Yes	Yes
N	66,088	66,088	66,088	66,088	198,215	198,215	198,215	198,215
Adjusted R^2	0.487	0.477	0.549	0.532	0.343	0.342	0.401	0.380

Panel B: Removal of countries with no change in equity market openness during the sample period

	(1)	(2)	(3)	(4)
VARIABLES	TOT_ACC	WC_ACC	TOT_ACC	WC_ACC
Opening	0.0230***	0.0244***	0.0106***	0.0121***
	(0.000)	(0.000)	(0.001)	(0.000)
$1/TotAssets_{t-1}$	0.0544***	0.0681***	0.1898***	0.2086***
	(0.000)	(0.000)	(0.002)	(0.003)
PPE_t	-0.0250***	0.0098***	0.0145***	0.0430***
	(0.000)	(0.000)	(0.000)	(0.000)
ΔREV_t-ΔAR_t	0.0668***	0.0724***	0.0533***	0.0582***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t-1}	0.1224***	0.1344***	0.0893***	0.0949***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_t	-0.6079***	-0.5891***	-0.6433***	-0.6313***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t+1}	0.1032***	0.1145***	0.0579***	0.0612***
	(0.000)	(0.000)	(0.000)	(0.000)
$Size_t$	0.0088***	0.0090***	0.0180***	0.0178***
	(0.000)	(0.000)	(0.000)	(0.000)
$Leverage_t$	-0.0208	-0.0132	-0.0013	0.0057
	(0.122)	(0.392)	(0.935)	(0.755)
$Growth_t$	0.0189***	0.0199***	0.0112***	0.0133***
	(0.000)	(0.000)	(0.000)	(0.000)
$Std(sales)_t$	-0.0076	-0.0048	0.0013	0.0023
	(0.107)	(0.346)	(0.620)	(0.385)
NOA_{t-1}	-0.0017***	-0.0023***	-0.0023***	-0.0028***
	(0.000)	(0.000)	(0.005)	(0.002)
$GDP\ Growth_t$	-0.0008	-0.0010	-0.0009	-0.0009
	(0.312)	(0.254)	(0.156)	(0.158)
$Inflation_t$	0.0050**	0.0095***	0.0066**	0.0101***
	(0.042)	(0.001)	(0.019)	(0.001)
$TradeOpen_t$	-0.0319	-0.0347*	0.0071	0.0023
	(0.114)	(0.073)	(0.561)	(0.843)
$GovExp_t$	-0.2116***	-0.2596***	-0.1219*	-0.1854***
	(0.001)	(0.001)	(0.069)	(0.001)
$FinDev_t$	0.0132	0.0097	0.0079	0.0034
	(0.432)	(0.556)	(0.466)	(0.744)
$IFRS\_Post_t$	0.0089**	0.0072*	0.0083**	0.0066
	(0.014)	(0.088)	(0.029)	(0.120)
Country fixed effects	Yes	Yes		
Industry fixed effects	Yes	Yes		
Year fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects			Yes	Yes
Cluster at country level	Yes	Yes	Yes	Yes
N	66,088	66,088	66,088	66,088
Adjusted R^2	0.487	0.477	0.549	0.532

Panel C. Robustness with extra firm-level growth controls

VARIABLES	(1) TOT_ACC	(2) WC_ACC	(3) TOT_ACC	(4) WC_ACC
Opening	0.0313***	0.0340***	0.0205***	0.0233***
	(0.000)	(0.000)	(0.000)	(0.000)
$1/TotAssets_{t-1}$	-0.0522**	-0.0376	-0.0096	0.0031
	(0.038)	(0.117)	(0.787)	(0.937)
PPE_t	-0.0364***	-0.0028	-0.0112**	0.0166***
	(0.000)	(0.270)	(0.025)	(0.001)
ΔREV_t-ΔAR_t	0.0256***	0.0289***	0.0132	0.0196**
	(0.005)	(0.001)	(0.143)	(0.032)
CFO_{t-1}	0.0983***	0.1001***	0.0762***	0.0766***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_t	-0.5010***	-0.4934***	-0.5293***	-0.5222***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t+1}	0.0987***	0.1024***	0.0724***	0.0744***
	(0.000)	(0.000)	(0.000)	(0.000)
$Size_t$	0.0027***	0.0019***	0.0093***	0.0089***
	(0.001)	(0.009)	(0.000)	(0.000)
$Leverage_t$	0.0117*	0.0183***	0.0337***	0.0422***
	(0.092)	(0.007)	(0.000)	(0.000)
$Std(sales)_t$	0.0013	0.0065*	0.0051	0.0064**
	(0.688)	(0.075)	(0.112)	(0.047)
NOA_{t-1}	0.0005**	-0.0002	-0.0007**	-0.0009***
	(0.043)	(0.162)	(0.011)	(0.001)
ROA Quintile1	-0.0721***	-0.0714***	-0.0816***	-0.0825***
	(0.000)	(0.000)	(0.000)	(0.000)
ROA Quintile2	-0.0122***	-0.0155***	-0.0217***	-0.0229***
	(0.000)	(0.000)	(0.000)	(0.000)
ROA Quintile4	0.0116***	0.0165***	0.0209***	0.0229***
	(0.000)	(0.000)	(0.000)	(0.000)
ROA Quintile5	0.0413***	0.0556***	0.0578***	0.0650***
	(0.000)	(0.000)	(0.000)	(0.000)
SG Quintile1	-0.0057**	-0.0052**	-0.0053*	-0.0041
	(0.018)	(0.043)	(0.078)	(0.188)
SG Quintile2	-0.0012	-0.0006	-0.0010	-0.0005
	(0.310)	(0.562)	(0.344)	(0.623)
SG Quintile4	0.0019**	0.0013	0.0008	0.0001
	(0.022)	(0.143)	(0.296)	(0.870)
SG Quintile5	0.0110***	0.0104***	0.0068***	0.0061**
	(0.000)	(0.000)	(0.003)	(0.015)
MB Quintile1	0.0080***	0.0051***	0.0055**	0.0050**
	(0.000)	(0.008)	(0.015)	(0.033)
MB Quintile2	0.0059***	0.0043***	0.0021**	0.0020**
	(0.000)	(0.000)	(0.019)	(0.038)
MB Quintile4	-0.0024**	-0.0019**	0.0007	0.0004
	(0.013)	(0.033)	(0.469)	(0.681)
MB Quintile5	-0.0021	-0.0017	0.0027	0.0023
	(0.475)	(0.501)	(0.206)	(0.287)
$GDP\ Growth_t$	0.0006	0.0005	0.0005	0.0004
	(0.490)	(0.552)	(0.448)	(0.512)

$Inflation_t$	0.0493*	0.0474*	0.0637**	0.0613**
	(0.059)	(0.064)	(0.019)	(0.022)
$TradeOpen_t$	0.0063	0.0050	0.0112**	0.0096**
	(0.204)	(0.313)	(0.012)	(0.028)
$GovExp_t$	-0.1154	-0.1197	-0.0016	-0.0326
	(0.286)	(0.328)	(0.984)	(0.722)
$FinDev_t$	-0.0103	-0.0114	-0.0068	-0.0096
	(0.197)	(0.129)	(0.389)	(0.210)
$IFRS\_Post_t$	0.0077**	0.0027	0.0055***	0.0006
	(0.022)	(0.487)	(0.006)	(0.835)
Country fixed effects	Yes	Yes		
Industry fixed effects	Yes	Yes		
Year fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects			Yes	Yes
Cluster at country level	Yes	Yes	Yes	Yes
N	170,334	170,334	167,878	167,878
Adjusted R^2	0.386	0.394	0.442	0.423

Notes: This table reports robustness tests that examine sample-wide earnings management in periods around the liberalization of equity market. Panel A presents the results of estimating the expanded specification detailed in equation (1) using event year t-1, t, t+1, which is 1 year before, current year, and one year after the opening year, respectively, using both liberalizing sample (with removal of countries that have open markets or never opened during the sample period) and full sample. Panel B presents the results of estimating the expanded specification detailed in equation (1) using the liberalizing sample. In Panel C, extra firm-level growth measures ROA, Sales Growth and Market to Book (quintiles) are included following Collins et al. (2017). *WC_ACC* is working capital accruals, measured as the change in current assets minus the change in current liabilities (adjusted for current liabilities used for financing). *TOT_ACC* is total accruals, measured as *WC_ACC* minus depreciation expense. *Opening* is a dummy variable equals to 1 if a firm is in a country at the year of official equity market liberalization, and zero otherwise. *1/TotAssets* is the inverse of total assets in year t-1. $CFO_{t-1,t,t+1}$ are cash flows from operations in year *t−1, t,* and *t+1* scaled by total assets in year t-1. *PPE* is net property, plant, and equipment, scaled by total assets in year t-1. Δ*REV*-Δ*AR* is the change in sales minus the change in accounts receivable, scaled by total assets in year t-1. All other control variables are defined in Appendix. Standard errors are robust to heteroscedasticity and clustered at country level. Robust p-values are reported in parentheses: ∗∗∗, ∗∗, and ∗ denote significance levels at 1%, 5%, and 10%, respectively.

Table 5: External finance dependence

VARIABLES	(1) TOT_ACC	(2) WC_ACC	(3) TOT_ACC	(4) WC_ACC	(5) TOT_ACC	(6) WC_ACC
*Opening*Eqfin*	0.0336***	0.0221***				
	(0.000)	(0.000)				
*Opening*RD_Intensity*			0.2716***	0.1722**		
			(0.002)	(0.042)		
*Opening*Inv_Intensity*					0.2072***	0.1526***
					(0.000)	(0.000)
Opening	0.0160***	0.0224***	0.0180***	0.0241***	-0.0251***	-0.0086
	(0.002)	(0.000)	(0.001)	(0.000)	(0.002)	(0.241)
$1/TotAssets_{t-1}$	-0.0277	-0.0042	-0.0279	-0.0043	-0.0277	-0.0041
	(0.185)	(0.837)	(0.180)	(0.830)	(0.185)	(0.839)
PPE_t	-0.0289***	0.0056***	-0.0290***	0.0056***	-0.0289***	0.0056***
	(0.000)	(0.006)	(0.000)	(0.006)	(0.000)	(0.006)
ΔREV_t-ΔAR_t	0.0525***	0.0568***	0.0524***	0.0567***	0.0525***	0.0568***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t-1}	0.1395***	0.1467***	0.1396***	0.1467***	0.1396***	0.1467***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_t	-0.4541***	-0.4407***	-0.4540***	-0.4406***	-0.4541***	-0.4406***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t+1}	0.1303***	0.1373***	0.1303***	0.1374***	0.1303***	0.1373***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Size_t$	0.0054***	0.0054***	0.0054***	0.0054***	0.0054***	0.0054***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Leverage_t$	0.0120	0.0176**	0.0120	0.0176**	0.0120	0.0176**
	(0.141)	(0.032)	(0.139)	(0.031)	(0.138)	(0.031)
$Growth_t$	0.0183***	0.0216***	0.0184***	0.0217***	0.0182***	0.0216***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
$Std(sales)_t$	-0.0113***	-0.0058**	-0.0112***	-0.0056**	-0.0113***	-0.0058**
	(0.000)	(0.036)	(0.000)	(0.037)	(0.000)	(0.036)
NOA_{t-1}	-0.0008	-0.0016***	-0.0008	-0.0016***	-0.0008	-0.0016***
	(0.151)	(0.001)	(0.154)	(0.001)	(0.151)	(0.001)
$GDP\ Growth_t$	0.0010	0.0009	0.0010	0.0010	0.0010	0.0009
	(0.272)	(0.301)	(0.267)	(0.296)	(0.272)	(0.301)
$Inflation_t$	0.0079*	0.0124***	0.0078*	0.0123***	0.0079*	0.0124***
	(0.059)	(0.003)	(0.058)	(0.003)	(0.059)	(0.003)
$TradeOpen_t$	0.0117**	0.0105**	0.0115**	0.0104**	0.0117**	0.0105**
	(0.011)	(0.028)	(0.012)	(0.030)	(0.011)	(0.029)
$GovExp_t$	-0.1420	-0.1528	-0.1401	-0.1511	-0.1418	-0.1525
	(0.258)	(0.307)	(0.266)	(0.313)	(0.260)	(0.309)
$FinDev_t$	-0.0148**	-0.0162**	-0.0147**	-0.0161**	-0.0148**	-0.0162**
	(0.026)	(0.016)	(0.028)	(0.017)	(0.026)	(0.016)
$IFRS\_Post_t$	0.0083**	0.0030	0.0082**	0.0029	0.0083**	0.0030
	(0.038)	(0.528)	(0.039)	(0.539)	(0.038)	(0.528)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at country level	Yes	Yes	Yes	Yes	Yes	Yes
N	197,974	197,974	197,346	197,346	197,974	197,974
Adjusted R^2	0.342	0.342	0.342	0.341	0.343	0.342

Notes: This table presents results examining the role of industry external finance dependence on the effect of equity market integration on firms' earnings management. We use three measurements of industry-level external finance dependence. *Eqfin* is the need for external equity finance calculated as the median fraction of the net equity issuance

amount to capital expenditure following Rajan & Zingales (1998). Similarly, *R&D/AT* is R&D intensity measured as the industry median of R&D spending scaled by year beginning total assets. *Inv_intensity* is investment intensity measured as the industry median ratio of capital expenditure to net property, plant and equipment. All these three measures are calculated using all publicly traded firms in each SIC two-digit industry in the United States from 1980 to 1989. *WC_ACC* is working capital accruals, measured as the change in current assets minus the change in current liabilities (adjusted for current liabilities used for financing). *TOT_ACC* is total accruals, measured as *WC_ACC* minus depreciation expense. *Opening* is a dummy variable equals to 1 if a firm is in a country at the year of official equity market liberalization, and zero otherwise. *1/TotAssets* is the inverse of total assets in year t-1. $CFO_{t-1,t,t+1}$ are cash flows from operations in year $t-1$, t, and $t+1$ scaled by total assets in year t-1. *PPE* is net property, plant, and equipment, scaled by total assets in year t-1. ΔREV-ΔAR is the change in sales minus the change in accounts receivable, scaled by total assets in year t-1. All other control variables are defined in Appendix. Standard errors are robust to heteroscedasticity and clustered at country level. Robust p-values are reported in parentheses: ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

Table 6: Financial Constraints

VARIABLES	(1) TOT_ACC	(2) WC_ACC	(3) TOT_ACC	(4) WC_ACC	(5) TOT_ACC	(6) WC_ACC
*Opening*KZ_t-1*	0.0203***	0.0200***				
	(0.000)	(0.000)				
*Opening*WW_t-1*			0.1869***	0.2188***		
			(0.000)	(0.000)		
*Opening*SA_t-1*					0.0176**	0.0126*
					(0.034)	(0.094)
KZ_t-1	-0.0092***	-0.0081***				
	(0.000)	(0.000)				
WW_t-1			0.0031	0.0040*		
			(0.182)	(0.077)		
SA_t-1					0.0288***	0.0349***
					(0.000)	(0.000)
Opening	0.0277***	0.0301***	0.0869***	0.0997***	0.0827***	0.0689**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.007)	(0.014)
$1/TotAssets_{t-1}$	-0.0345	-0.0107	-0.0288	-0.0065	-0.1219***	-0.1182***
	(0.101)	(0.605)	(0.168)	(0.747)	(0.000)	(0.000)
PPE_t	-0.0281***	0.0063***	-0.0291***	0.0054***	-0.0283***	0.0063**
	(0.000)	(0.002)	(0.000)	(0.009)	(0.000)	(0.011)
ΔREV_t-ΔAR_t	0.0442***	0.0485***	0.0524***	0.0565***	0.0483***	0.0518***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t-1}	0.1183***	0.1273***	0.1390***	0.1460***	0.1387***	0.1456***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_t	-0.4490***	-0.4343***	-0.4531***	-0.4397***	-0.4527***	-0.4389***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t+1}	0.1252***	0.1326***	0.1309***	0.1376***	0.1315***	0.1387***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Size_t$	0.0051***	0.0052***	0.0056***	0.0056***	0.0098***	0.0107***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Leverage_t$	0.0262***	0.0303***	0.0123	0.0180**	0.0185**	0.0254***
	(0.001)	(0.000)	(0.129)	(0.027)	(0.018)	(0.001)
$Growth_t$	0.0203***	0.0234***	0.0182***	0.0215***	0.0176***	0.0207***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
$Std(sales)_t$	-0.0124***	-0.0070**	-0.0114***	-0.0060**	-0.0146***	-0.0099***
	(0.000)	(0.029)	(0.000)	(0.047)	(0.000)	(0.003)
NOA_{t-1}	-0.0006	-0.0015***	-0.0008	-0.0016***	-0.0008*	-0.0016***
	(0.201)	(0.000)	(0.152)	(0.001)	(0.096)	(0.000)
GDP Growth$_t$	0.0009	0.0008	0.0009	0.0008	0.0010	0.0009
	(0.303)	(0.333)	(0.328)	(0.362)	(0.294)	(0.329)
$Inflation_t$	0.0625**	0.0623**	0.0664**	0.0680**	0.0071*	0.0115***
	(0.012)	(0.011)	(0.026)	(0.022)	(0.085)	(0.006)
$TradeOpen_t$	0.0077	0.0069	0.0100*	0.0089	0.0107**	0.0094**
	(0.131)	(0.186)	(0.060)	(0.108)	(0.012)	(0.033)
$GovExp_t$	-0.1126	-0.1148	-0.1074	-0.1236	-0.1521	-0.1648
	(0.377)	(0.418)	(0.381)	(0.397)	(0.222)	(0.265)
$FinDev_t$	-0.0150*	-0.0168**	-0.0171**	-0.0186**	-0.0141**	-0.0153**
	(0.068)	(0.036)	(0.035)	(0.020)	(0.041)	(0.028)
$IFRS\_Post_t$	0.0076*	0.0022	0.0090**	0.0037	0.0065*	0.0007
	(0.053)	(0.626)	(0.026)	(0.433)	(0.064)	(0.851)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Cluster at country level	Yes	Yes	Yes	Yes	Yes	Yes
N	185,459	185,459	193,687	193,687	198,214	198,214
Adjusted R^2	0.338	0.336	0.343	0.342	0.349	0.351

Notes: This table presents results examining the role of financial constraints on the effect of equity market integration on firms' earnings management. We use three measurements of firms' financial constraints. *KZ* is the index in year t-1 constructed following Kaplan and Zingales (1997); *WW* is the index in year t-1 constructed following Whited and Wu (2006); *SA* is the index in year t-1 constructed following Hadlock and Pierce (2010). *WC_ACC* is working capital accruals, measured as the change in current assets minus the change in current liabilities (adjusted for current liabilities used for financing). *TOT_ACC* is total accruals, measured as *WC_ACC* minus depreciation expense. *Opening* is a dummy variable equals to 1 if a firm is in a country at the year of official equity market liberalization, and zero otherwise. *1/TotAssets* is the inverse of total assets in year t-1. $CFO_{t-1,t,t+1}$ are cash flows from operations in year *t−1, t,* and *t+1* scaled by total assets in year t-1. *PPE* is net property, plant, and equipment, scaled by total assets in year t-1. Δ*REV*-Δ*AR* is the change in sales minus the change in accounts receivable, scaled by total assets in year t-1. All other control variables are defined in Appendix. Standard errors are robust to heteroscedasticity and clustered at country level. Robust p-values are reported in parentheses: ∗∗∗, ∗∗, and ∗ denote significance levels at 1%, 5%, and 10%, respectively.

Table 7: New Equity Issuance

VARIABLES	(1) TOT_ACC	(2) WC_ACC	(3) TOT_ACC	(4) WC_ACC
*Opening*Eqissue1*	0.0145***	0.0126***		
	(0.006)	(0.009)		
*Opening*Eqissue2*			0.0111*	0.0081
			(0.099)	(0.168)
Eqissue1	0.0041	0.0046*		
	(0.166)	(0.081)		
Eqissue2			0.0097***	0.0134***
			(0.000)	(0.000)
Opening	0.0228***	0.0260***	0.0203***	0.0234***
	(0.000)	(0.000)	(0.000)	(0.000)
$1/TotAssets_{t-1}$	-0.0298	-0.0062	-0.0319	-0.0103
	(0.159)	(0.763)	(0.207)	(0.654)
PPE_t	-0.0288***	0.0057***	-0.0318***	0.0026
	(0.000)	(0.005)	(0.000)	(0.205)
ΔREV_t-ΔAR_t	0.0523***	0.0566***	0.0502***	0.0533***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t-1}	0.1391***	0.1461***	0.1390***	0.1466***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_t	-0.4555***	-0.4420***	-0.4591***	-0.4439***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t+1}	0.1306***	0.1377***	0.1335***	0.1425***
	(0.000)	(0.000)	(0.000)	(0.000)
$Size_t$	0.0054***	0.0054***	0.0052***	0.0053***
	(0.000)	(0.000)	(0.000)	(0.000)
$Leverage_t$	0.0122	0.0177**	0.0133	0.0181**
	(0.141)	(0.033)	(0.133)	(0.038)
$Growth_t$	0.0179***	0.0212***	0.0199***	0.0226***
	(0.001)	(0.000)	(0.000)	(0.000)
$Std(sales)_t$	-0.0102***	-0.0047	-0.0140***	-0.0096***
	(0.002)	(0.135)	(0.000)	(0.005)
NOA_{t-1}	-0.0008	-0.0017***	-0.0009	-0.0017***
	(0.133)	(0.000)	(0.122)	(0.000)
GDP $Growth_t$	0.0010	0.0009	0.0008	0.0007
	(0.295)	(0.327)	(0.437)	(0.450)
$Inflation_t$	0.0076*	0.0120***	0.0944**	0.0910**
	(0.062)	(0.003)	(0.011)	(0.012)
$TradeOpen_t$	0.0117**	0.0106**	0.0051	0.0038
	(0.012)	(0.029)	(0.348)	(0.500)
$GovExp_t$	-0.1443	-0.1556	-0.1263	-0.1483
	(0.255)	(0.302)	(0.277)	(0.266)
$FinDev_t$	-0.0148**	-0.0162**	-0.0082	-0.0099
	(0.026)	(0.015)	(0.285)	(0.140)
$IFRS\_Post_t$	0.0084**	0.0031	0.0093***	0.0037
	(0.034)	(0.511)	(0.008)	(0.343)
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Cluster at country level	Yes	Yes	Yes	Yes
N	197,707	197,707	157,361	157,361
Adjusted R^2	0.345	0.344	0.360	0.357

Notes: This table presents results examining the role of new equity issuances on the effect of equity market integration on firms' earnings management. We use two ex post measures of firms' new equity issuance: *Eqissue1* indicates whether a firm is issuing equity during the subsequent year and is defined as the natural logarithm of the shares outstanding (adjusted for stock splits) in year t+1 over shares outstanding (adjusted for stock splits) in year t. *Eqissue2* is the Godsell et al. (2017) measure which is calculated as the shareholders' equity in year t+1 minus the sum of (shareholders' equity in year t-1 + net income in year t + net income in year t+1). *WC_ACC* is working capital accruals, measured as the change in current assets minus the change in current liabilities (adjusted for current liabilities used for financing). *TOT_ACC* is total accruals, measured as *WC_ACC* minus depreciation expense. *Opening* is a dummy variable equals to 1 if a firm is in a country at the year of official equity market liberalization, and zero otherwise. *1/TotAssets* is the inverse of total assets in year t-1. $CFO_{t-1,t,t+1}$ are cash flows from operations in year *t−1, t,* and *t+1* scaled by total assets in year t-1. *PPE* is net property, plant, and equipment, scaled by total assets in year t-1. Δ*REV*-Δ*AR* is the change in sales minus the change in accounts receivable, scaled by total assets in year t-1. All other control variables are defined in Appendix. Standard errors are robust to heteroscedasticity and clustered at country level. Robust p-values are reported in parentheses: ∗∗∗, ∗∗, and ∗ denote significance levels at 1%, 5%, and 10%, respectively.

Table 8: Firm-level characteristics: Auditors, Analysts, Institutional Holdings

VARIABLES	(1) TOT_ACC	(2) WC_ACC	(3) TOT_ACC	(4) WC_ACC	(5) TOT_ACC	(6) WC_ACC
*Opening*BigN$_{t-1}$*	-0.0232***	-0.0258***	-0.0258***	-0.0279***	-0.0215***	-0.0245***
	(0.006)	(0.008)	(0.000)	(0.002)	(0.005)	(0.006)
*Opening*Analysts$_{t-1}$*			0.0114***	0.0090***		
			(0.000)	(0.000)		
*Opening*DIO$_{t-1}$*					0.2097***	0.1629***
					(0.000)	(0.000)
BigN$_{t-1}$	-0.0070***	-0.0057***	-0.0068***	-0.0056***	-0.0067***	-0.0055***
	(0.004)	(0.002)	(0.006)	(0.003)	(0.004)	(0.002)
Analysts$_{t-1}$			-0.0017	-0.0009		
			(0.257)	(0.502)		
DIO$_{t-1}$					-0.0255***	-0.0172*
					(0.002)	(0.095)
Opening	0.0283***	0.0315***	0.0195**	0.0246***	0.0234***	0.0277***
	(0.000)	(0.000)	(0.011)	(0.001)	(0.000)	(0.000)
1/TotAssets$_{t-1}$	-0.0302	-0.0062	-0.0293	-0.0058	-0.0313	-0.0070
	(0.163)	(0.764)	(0.184)	(0.784)	(0.147)	(0.734)
PPE$_t$	-0.0289***	0.0056***	-0.0290***	0.0056***	-0.0290***	0.0056***
	(0.000)	(0.005)	(0.000)	(0.005)	(0.000)	(0.006)
ΔREV$_t$-ΔAR$_t$	0.0522***	0.0566***	0.0522***	0.0566***	0.0522***	0.0566***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO$_{t-1}$	0.1396***	0.1466***	0.1398***	0.1467***	0.1396***	0.1466***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO$_t$	-0.4540***	-0.4406***	-0.4538***	-0.4405***	-0.4540***	-0.4405***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO$_{t+1}$	0.1307***	0.1377***	0.1308***	0.1377***	0.1307***	0.1376***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Size$_t$	0.0057***	0.0057***	0.0062***	0.0060***	0.0059***	0.0058***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage$_t$	0.0122	0.0177**	0.0124	0.0178**	0.0121	0.0177**
	(0.141)	(0.033)	(0.140)	(0.034)	(0.141)	(0.033)
Growth$_t$	0.0184***	0.0216***	0.0183***	0.0216***	0.0184***	0.0216***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Std(sales) $_t$	-0.0111***	-0.0055*	-0.0112***	-0.0056**	-0.0112***	-0.0056*
	(0.000)	(0.055)	(0.000)	(0.045)	(0.000)	(0.051)
NOA$_{t-1}$	-0.0008	-0.0017***	-0.0008	-0.0017***	-0.0008	-0.0017***
	(0.128)	(0.000)	(0.125)	(0.000)	(0.127)	(0.000)
GDP Growth$_t$	0.0010	0.0009	0.0010	0.0009	0.0010	0.0009
	(0.283)	(0.307)	(0.283)	(0.304)	(0.286)	(0.309)
Inflation$_t$	0.0079*	0.0124***	0.0079*	0.0124***	0.0080*	0.0124***
	(0.064)	(0.004)	(0.067)	(0.004)	(0.063)	(0.004)
TradeOpen$_t$	0.0118**	0.0107**	0.0116**	0.0106**	0.0113**	0.0104**
	(0.012)	(0.028)	(0.013)	(0.026)	(0.020)	(0.038)
GovExp$_t$	-0.1371	-0.1470	-0.1402	-0.1484	-0.1284	-0.1411
	(0.274)	(0.326)	(0.272)	(0.321)	(0.319)	(0.351)
FinDev$_t$	-0.0152**	-0.0166**	-0.0151**	-0.0166**	-0.0142**	-0.0159**
	(0.021)	(0.013)	(0.023)	(0.014)	(0.039)	(0.021)
IFRS_Post$_t$	0.0080**	0.0028	0.0082**	0.0029	0.0082**	0.0029
	(0.046)	(0.557)	(0.034)	(0.529)	(0.041)	(0.541)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Cluster at country level	Yes	Yes	Yes	Yes	Yes	Yes
N	198,165	198,165	198,165	198,165	198,165	198,165
Adjusted R-squared	0.343	0.343	0.344	0.343	0.344	0.343

Notes: This table presents results examining the role of firm-level stakeholders on the effect of equity market integration on firms' earnings management. *BigN* is a dummy variable that equals to 1 if a firm is audited by big auditors numbered from 01 to 08 in Capital IQ Global, otherwise zero, and is measured in fiscal year end of t-1. *Analysts* is the natural logarithm of 1 plus the total number of analysts following the firm and is measured one month before the fiscal year end of the firm (missing values are recoded as zero)[13]. *DIO* is the percentage of domestic institutional ownership on firms' total shares outstanding (missing values are recoded as zero) and is measured in calendar year end of t-1[14]. *WC_ACC* is working capital accruals, measured as the change in current assets minus the change in current liabilities (adjusted for current liabilities used for financing). *TOT_ACC* is total accruals, measured as *WC_ACC* minus depreciation expense. *Opening* is a dummy variable equals to 1 if a firm is in a country at the year of official equity market liberalization, and zero otherwise. *1/TotAssets* is the inverse of total assets in year t-1. $CFO_{t-1,t,t+1}$ are cash flows from operations in year $t-1$, t, and $t+1$ scaled by total assets in year t-1. *PPE* is net property, plant, and equipment, scaled by total assets in year t-1. ΔREV-ΔAR is the change in sales minus the change in accounts receivable, scaled by total assets in year t-1. All other control variables are defined in Appendix. Standard errors are robust to heteroscedasticity and clustered at country level. Robust p-values are reported in parentheses: ***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

[13] Estimation results are similar if we use sample by excluding firms having no analyst following in the sample.

[14] Estimation results do not substantially change if we use the percentage of overall institutional ownership on firms' total shares outstanding (*IO*).

Table 9: Country-level characteristics: resource-based public enforcement, corruption and total enforcement

VARIABLES	(1) TOT_ACC	(2) WC_ACC	(3) TOT_ACC	(4) WC_ACC	(5) TOT_ACC	(6) WC_ACC
*Opening*Budget*	-0.0153**	-0.0159**				
	(0.041)	(0.036)				
*Opening*Perceptions of Corruption*			0.0211***	0.0265***		
			(0.000)	(0.000)		
*Opening*Total Enforcement*					-0.0001	0.0003
					(0.947)	(0.799)
Opening	0.1041***	0.1003***	0.1087***	0.1315***	0.0320	0.0212
	(0.000)	(0.000)	(0.000)	(0.000)	(0.456)	(0.623)
Perceptions of Corruption			0.0024	0.0009		
			(0.411)	(0.757)		
Total Enforcement					-0.0002	-0.0003
					(0.458)	(0.301)
$1/TotAssets_{t-1}$	-0.0300**	-0.0015	-0.0281	-0.0051	-0.0309	-0.0069
	(0.030)	(0.920)	(0.161)	(0.793)	(0.126)	(0.718)
PPE_t	-0.0280***	0.0057***	-0.0290***	0.0054***	-0.0290***	0.0055***
	(0.000)	(0.002)	(0.000)	(0.009)	(0.000)	(0.010)
ΔREV_t-ΔAR_t	0.0425***	0.0475***	0.0524***	0.0570***	0.0523***	0.0568***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t-1}	0.1318***	0.1385***	0.1393***	0.1460***	0.1392***	0.1459***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_t	-0.3956***	-0.3824***	-0.4513***	-0.4385***	-0.4500***	-0.4370***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO_{t+1}	0.1306***	0.1371***	0.1314***	0.1382***	0.1302***	0.1369***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Size_t$	0.0037***	0.0039***	0.0054***	0.0055***	0.0054***	0.0055***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Leverage_t$	0.0189***	0.0265***	0.0119	0.0176**	0.0117	0.0174**
	(0.003)	(0.000)	(0.141)	(0.032)	(0.150)	(0.036)
$Growth_t$	0.0172***	0.0211***	0.0179***	0.0212***	0.0180***	0.0212***
	(0.010)	(0.002)	(0.001)	(0.000)	(0.001)	(0.000)
$Std(sales)_t$	-0.0078**	-0.0014	-0.0108***	-0.0054*	-0.0105***	-0.0050*
	(0.023)	(0.504)	(0.001)	(0.079)	(0.002)	(0.095)
NOA_{t-1}	-0.0005	-0.0014***	-0.0008	-0.0016***	-0.0008	-0.0016***
	(0.351)	(0.005)	(0.144)	(0.001)	(0.147)	(0.001)
GDP Growth$_t$	0.0014**	0.0012*	0.0011	0.0010	0.0010	0.0009
	(0.050)	(0.080)	(0.218)	(0.236)	(0.344)	(0.382)
$Inflation_t$	0.0048**	0.0091***	0.0558*	0.0636**	0.0072*	0.0119***
	(0.015)	(0.000)	(0.074)	(0.039)	(0.059)	(0.003)
$TradeOpen_t$	0.0187***	0.0185***	0.0114**	0.0099*	0.0126***	0.0118***
	(0.000)	(0.000)	(0.046)	(0.091)	(0.002)	(0.007)
$GovExp_t$	-0.0312	-0.0092	-0.1097	-0.1190	-0.1701	-0.1692
	(0.680)	(0.920)	(0.367)	(0.415)	(0.269)	(0.349)
$FinDev_t$	-0.0118**	-0.0121**	-0.0161**	-0.0168***	-0.0147*	-0.0160**
	(0.022)	(0.015)	(0.014)	(0.007)	(0.051)	(0.036)
$IFRS\_Post_t$	0.0021	-0.0069**	0.0086**	0.0034	0.0087**	0.0034
	(0.554)	(0.010)	(0.032)	(0.479)	(0.041)	(0.502)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Cluster at country level	Yes	Yes	Yes	Yes	Yes	Yes
N	140,507	140,507	197,057	197,057	194,970	194,970
Adjusted R-squared	0.287	0.292	0.340	0.340	0.338	0.338

Notes: This table reports the role of legal enforcement on the effect of equity market opening on firms' earnings management. We use several measures related to country-level characteristics. *Budget* is a resource-based measure of public enforcement from Jackson and Roe (2009) and is the securities regulators' 2005 budget divided by the country's GDP (extended sample, with extrapolated observations). *Perceptions of Corruption Index* (*PCI*) is a continuous measure of country-level corruption from International Transparency and is rescaled so that higher value indicates more corruption in the country. *Total Enforcement* is a continuous measure of country-level legal enforcement from Brown, Preiato and Tarca (2014) and is calculated as the sum of *Audit* and *Enfor*: *Audit* measures the audit environment in the country, *Enfor* measures the regulatory enforcement directly related to financial statements. *WC_ACC* is working capital accruals, measured as the change in current assets minus the change in current liabilities (adjusted for current liabilities used for financing). *TOT_ACC* is total accruals, measured as *WC_ACC* minus depreciation expense. *Opening* is a dummy variable equals to 1 if a firm is in a country at the year of official equity market liberalization, and zero otherwise. *1/TotAssets* is the inverse of total assets in year t-1. $CFO_{t-1,t,t+1}$ are cash flows from operations in year *t−1, t,* and *t+1* scaled by total assets in year t-1. *PPE* is net property, plant, and equipment, scaled by total assets in year t-1. ΔREV-ΔAR is the change in sales minus the change in accounts receivable, scaled by total assets in year t-1. All other control variables are defined in Appendix. Standard errors are robust to heteroscedasticity and clustered at country level. Robust p-values are reported in parentheses: ∗∗∗, ∗∗, and ∗ denote significance levels at 1%, 5%, and 10%, respectively.